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# **RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS**

**RULES**

**Part B**

**Class Surveys**

## **2015          AMENDMENT NO.2**

Rule No.30          8th May 2015

Resolved by Technical Committee on 2nd February 2015

Approved by Board of Directors on 23rd February 2015

AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Rules for the survey and construction of steel ships” has been partly amended as follows:

**Part B CLASS SURVEYS**

**Amendment 2-1**

**Chapter 1 GENERAL**

**1.1 Surveys**

**1.1.6 Modification of the Requirements**

Sub-paragraph -3 has been amended as follows.

**3** For tanks and cargo holds where effective coatings are found to be in a good condition, the extent of internal examination, close-up surveys or gauging requirements specified in **Chapters 3** through **9** of this Part may be ~~specially considered~~ reduced to a degree that is sufficient to confirm the actual average condition of the structure under the coating at the discretion of the Surveyor.

**Chapter 3 ANNUAL SURVEYS**

**3.2 Annual Surveys for Hull, Equipment, Fire Extinction and Fittings**

**3.2.6 Thickness Measurements**

Sub-paragraph 3.2.6(3) has been amended as follows.

At Annual Surveys, the thickness measurements **(1)** to **(3)** below are to be carried out. As to the gauging equipment and thickness measurement report, the provisions of **5.2.6-1** are to be applied correspondingly as well.

- (1) Spaces and Tanks listed in **Table B3.6**
- (2) Areas where deemed necessary by the Surveyor as a consequence of internal examination of spaces and tanks specified in **3.2.4(2)**
- (3) Substantial corrosion areas identified at the previous survey (excluding cargo tanks of oil tankers other than ships built under **Part CSR-T of the Rules**, ships carrying dangerous

chemicals in bulk and ships carrying liquefied gases in bulk). For bulk carriers built under **Part CSR-B of the Rules** as well as for the hatch covers and hatch coamings specified in **1.3.1(6)(b)**, thickness measurements may be dispensed with at Surveyor's discretion in cases where a protective coating has been applied in accordance with coating manufacturer's requirements and is maintained in good condition.

## Chapter 4 INTERMEDIATE SURVEYS

### 4.2 Intermediate Surveys for Hull, Equipment, Fire extinction and Fittings

#### 4.2.5 Close-up Surveys

At Intermediate Surveys, close-up surveys listed in **Table B4.3** are to be carried out.

Table B4.3 has been amended as follows.

Table B4.3 Close-up Surveys

Items	Examinations
(Omitted)	
Requirements for Ships Carrying Liquefied Gases in bulk	
1 Ballast tanks	<ul style="list-style-type: none"> <li>• For ships over 10 <i>years</i> of age and up to 15 <i>years</i> of age, close-up surveys of the following portions are to be carried out:               <ul style="list-style-type: none"> <li>(1) All web frames<sup>*1</sup> and both transverse bulkheads<sup>*2</sup> in a representative ballast tank</li> <li>(2) The upper part of one web frame and one transverse bulkhead<sup>*2</sup> in another representative ballast tank</li> </ul> </li> <li>• For ships over 15 <i>years</i> of age, close-up surveys of all web frames<sup>*1</sup> and both transverse bulkheads<sup>*2</sup> in two representative ballast tanks are to be carried out.</li> <li>• Notwithstanding the above, for ships having independent tanks of type <i>C</i>, with a midship section similar to that of a general cargo ship, the extent of close-up surveys may be <del>specially considered</del> reduced to a degree that is sufficient to confirm the actual average condition of the structure under the coating at the discretion of the Surveyor.</li> </ul>
(Omitted)	

Notes:

- \*1: Including structural members adjacent to cross ties and/or transverse web frame rings, such as shell plating, longitudinal bulkheads, longitudinal stiffeners, brackets
- \*2: Including vertical and horizontal girders and adjacent structural members, and adjacent longitudinal bulkhead structure
- \*3: For bulk carriers with hybrid cargo hold arrangements, e.g. with some cargo holds of single side skin and others of double side skin, the Requirements for Double Skin Bulk Carriers are to apply to cargo holds of double side skin and associated wing spaces.

#### 4.2.6 Thickness Measurements

At Intermediate Surveys, thickness measurements of the area listed in (1) to (3) below are to be carried out. As to the gauging equipment and thickness measurement report, the provisions of **5.2.6-1** are to be applied correspondingly as well.

- (1) Structural members, etc. listed in **Table B4.4**
- (2) Suspect areas identified in the previous survey where deemed necessary by the Surveyor as a consequence of internal examination of spaces and tanks specified in **4.2.4**.
- (3) Substantial corrosion areas identified in the previous survey

Table B4.4 has been amended as follows.

Table B4.4 Thickness measurements

Items	Note
(Omitted)	
Requirements for the Bulk Carriers over 5 years of age	
1 Structural members in ballast tanks	(Omitted)
2 Hatch covers and hatch coamings	(Omitted)
3 Structural members in cargo holds	<ul style="list-style-type: none"> <li>• Thickness measurements of areas found to be suspect areas at previous surveys are to be carried out.</li> <li>• Thickness measurements are to be carried out to an extent that determines both general and local corrosion levels at the area subject to close-up survey.</li> <li>• The thickness measurements may be <del>dispensed with</del> <u>reduced to a degree that is sufficient to confirm the actual average condition of the structure under the coating</u> provided the Surveyor is satisfied by the results of the close-up survey: that there is no structural diminution and the protective coating is found to be in a good condition.</li> <li>• If the results of thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased in accordance with the provision of <b>5.2.6-5</b>.</li> <li>• In addition to the above, for bulk carriers built under <b>Part CSR-B of the Rules</b>, identified substantial corrosion areas are to be in accordance with either the following (1) or (2):               <ol style="list-style-type: none"> <li>(1) Be protected by coatings applied in accordance with coating manufacturer requirements and examined annually to confirm said coatings are still in good condition; or,</li> <li>(2) Have thickness measurements taken annually</li> </ol> </li> </ul>
Requirements for General Dry Cargo Ships of not less than 500 gross tonnage	
1 Structural members in ballast tanks	(Omitted)
2 Hatch covers and hatch coamings	(Omitted)
3 Structural members in cargo holds	<ol style="list-style-type: none"> <li>1 For ships carrying timber cargoes over 5 years of age               <ul style="list-style-type: none"> <li>• Thickness measurements of structural members that were subject to close-up survey in all cargo holds is to be carried out to the same extent as the previous Special Survey.</li> <li>• The thickness measurements may be <del>dispensed with</del> <u>reduced to a degree that is sufficient to confirm the actual average condition of the structure under the coating</u> provided the Surveyor is satisfied by the results of the close-up survey: that there is no structural diminution and the protective coating remains effective.</li> </ul> </li> </ol>

- |  |  |
|--|--|
|  | <p>2 For general dry cargo ships over 10 <i>years</i> of age (excluding ships carrying timber cargoes)</p> <ul style="list-style-type: none"><li>• When deemed necessary by the Surveyor as a consequence of the internal examination required in <b>Table B4.2</b>, thickness measurements are to be carried out to the satisfaction of the Surveyor. Where substantial corrosion is found, additional thickness measurements are to be carried out according to the provision of <b>5.2.6-6</b>.</li></ul> |
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## Chapter 5 SPECIAL SURVEYS

### 5.2 Special Surveys for Hull, Equipment, Fire Extinction and Fittings

#### 5.2.5 Close-up Surveys

**1** At Special Surveys, Close-up Surveys are to be carried out for portions **(1)** to **(4)** below:

- (1) Lower parts of shell frames, tank side brackets and transverse bulkheads
- (2) Lower parts of air pipes and sounding pipes located on top of inner bottom plating
- (3) All hatch cover plating, hatch coaming plating, and stiffeners
- (4) Securing, supporting and locking devices together with the welded parts of bow doors, inner doors, side shell doors and stern doors

(-2 is omitted.)

**3** At Special Surveys for ships carrying liquefied gases in bulk, notwithstanding the provision of **-1** above, a Close-up Survey is to be carried out for structural members and so forth listed in **Table B5.5-2**.

(-4 and -5 are omitted.)

Table B5.5-2 has been amended as follows.

**Table B5.5-2 Requirements of Close-up Surveys for Ships Carrying Liquefied Gases in Bulk**

Special Survey	Structural members subject to the Close-up Survey <sup>*2</sup>
Special Survey for ships up to 5 years of age (Special Survey No.1)	<ol style="list-style-type: none"> <li>1. One web frame in a representative ballast tank of the topside, hopper side and double hull side type (A)</li> <li>2. Lower part of one transverse bulkhead in a ballast tank<sup>*1</sup> (C)</li> </ol>
Special Survey for ships over 5 years and up to 10 years of age (Special Survey No.2)	<ol style="list-style-type: none"> <li>1. All web frames in a ballast tank, which is to be a double hull side tank or a topside tank (If such tanks are not fitted another ballast tank is to be selected.<sup>*1</sup>) (A)</li> <li>2. One web frame in each remaining ballast tank (A)</li> <li>3. One transverse bulkhead in each ballast tank (B)</li> </ol>
Special Survey for ships over 10 years of age (Special Survey No.3 and subsequent Special Surveys)	<ol style="list-style-type: none"> <li>1. All web frames in all ballast tanks (A)</li> <li>2. All transverse bulkheads in all ballast tanks (B)</li> </ol>

Notes:

Letters in this table mean:

(A): Cross Ties and complete transverse web frame rings including adjacent structural members such as shell plating, longitudinal bulkheads, longitudinal stiffeners, brackets, etc.

(B): Including vertical and horizontal girders, adjacent structural members and adjacent longitudinal bulkhead structure

(C): Including vertical and horizontal girders and adjacent structural members

\*1: One ballast tank can be selected from ballast tanks including peak tanks.

\*2: For ships having independent tanks of type C, with a midship section similar to that of a general cargo ship, the extent of close-up surveys may be ~~specially considered~~ reduced to a degree that is sufficient to confirm the actual average condition of the structure under the coating at the discretion of the Surveyor.

#### EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 8 May 2015.
2. Notwithstanding the amendments to the Rules, the current requirements apply to the surveys for which the application is submitted to the Society before the effective date.
3. Notwithstanding the provision of preceding 2., the amendments to the Rules may apply to the surveys for which the application is submitted to the Society before the effective date upon request by the owner.

## Chapter 8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

### 8.1 Propeller Shaft and Stern Tube Shaft Surveys

Paragraph 8.1.3 has been amended as follows.

#### 8.1.3 Preventive Maintenance System

Notwithstanding the requirements in **8.1.1** above, where the ship is equipped with oil lubricated stern tube bearings and appropriate stern tube oil sealing devices as approved by the Society, ~~and at least the following (1) through (4) are properly monitored and recorded for diagnosing the lubricating conditions of the shafting system and maintaining the system preventively based on the results of the diagnoses subject to approval of the Society;~~ the survey items of -2, -3 and -5 in **Table B8.1** need not be complied with provided that all condition monitoring data taken according to the approved preventive maintenance system is found to be within permissible limits and a general examination of the shafting system is carried out. ~~For a ship of which the preventive maintenance system has been approved by the Society, the notation "Propeller Shaft Condition Monitoring System" (abbreviated to PSCM) is affixed to the ship's classification character and~~ The propeller shaft may be examined as a propeller shaft Kind 1C for the remaining requirements except -2, -3 and -5 in **Table B8.1**. The examination of the propeller boss bore in way of the propeller shaft taper section required by survey item -6 in **Table B8.1** may be partly dispensed with where deemed appropriate by the Society.

- (1) Based upon Society approved preventive maintenance systems, at least the following (a) through (d) are to be properly monitored and recorded for diagnosing lubricating conditions of shafting systems and performing preventive system maintenance. Moreover, the notation "Propeller Shaft Condition Monitoring System" (abbreviated as "PSCM") is to be affixed to the classification characters of ships whose preventive maintenance systems have been approved by the Society.
  - ~~(1)~~(a) Lubricating oil sampling and analysis is to be carried out regularly at intervals not exceeding 6 months, with at least ~~and each analysis is to include~~ the following ~~(a) i)~~ through ~~(d) iv)~~ being analyzed each time ~~at least~~:
    - ~~(a) i)~~ i) Water contents
    - ~~(b) ii)~~ ii) Chlorides contents
    - ~~(c) iii)~~ iii) Contents of shaft metal and bearing metal particles
    - ~~(d) iv)~~ iv) Oxidation of oil
  - ~~(2)~~(b) Lubricating oil consumption rate
  - ~~(3)~~(c) Bearing temperature
  - ~~(4)~~(d) The values specified in -4 of **Table B8.1**
- (2) Based upon Society approved preventive maintenance systems, at least the following (a) through (e) are to be properly monitored and recorded for diagnosing lubricating conditions of shafting systems and performing preventive system maintenance. Moreover, the notation "Propeller Shaft Condition Monitoring System • A" (abbreviated as "PSCM • A") is to be affixed to the classification characters of ships whose preventive maintenance systems are approved by the Society.
  - (a) Lubricating oil sampling and analysis is to be carried out regularly at intervals not exceeding 6 months, with at least the following i) through iv) being analyzed each time:
    - i) Water content
    - ii) Chloride content



- iii) Content of shaft metal and bearing metal particles
- iv) Oxidation of oil
- (b) The monthly onboard checking of lubricating oil water content. Such checking, however, may be omitted when the oil sampling and analysis specified in (a) above is carried out regularly at intervals not exceeding 3 months.
- (c) Lubricating oil consumption rate
- (d) Bearing temperature
- (e) The values specified in -4 of **Table B8.1**

#### EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 8 May 2015.

## Chapter 2 CLASSIFICATION SURVEYS

### 2.1 Classification Survey During Construction

#### 2.1.6 Documents to be Maintained On Board

Sub-paragraph -1(2) has been amended as follows.

**1** At the completion of a classification survey, the Surveyor confirms that the finished versions of the following applicable drawings, plans, manuals, lists, etc., are on board.

(2) Other documents

((a) to (e) are omitted.)

(f) Operation manuals for the stability instrument (2.3.2-5) and/or the stability computer (1.2.2, Part U)

((g) to (q) are omitted.)

### 2.3 Sea Trials and Stability Experiments

#### 2.3.2 Stability Experiments

Sub-paragraph -5 has been added as follows.

(-1 to -3 are omitted.)

**4** Where a computer for stability calculation is on board the ship as a supplement to the stability information booklet, an operation manual for the computer is to be provided on board. After the computer is installed on board, a functional test to ensure that it is working correctly is to be carried out.

**5** Where a stability instrument is fitted on board the ship in accordance with the requirements of 2.2.3, Part N or 2.2.3, Part S, an operation manual for the instrument is to be provided on board. After the instrument is installed on board, a functional test to ensure that it is working correctly is to be carried out.

## Chapter 3      ANNUAL SURVEYS

Table B3.10 has been amended as follows.

Table B3.10    Special Requirements for Ships Carrying Dangerous Chemicals in bulk

Items	Examinations
	(Omitted)
<u>7</u> <u>Stability Instrument</u>	<u>Functional tests are to be carried out on stability instruments fitted in accordance with the requirements of 2.2.3, Part S.</u>
<del>78</del> <u>Miscellaneous</u>	(Omitted)

### EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 January 2016.
2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date except for in cases where the amendments are to be retroactively applied.  
 (Note) The term “*a similar stage of construction*” means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less. However, when there is a requirement to apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date, the amendment may apply.

## Chapter 2 CLASSIFICATION SURVEYS

### 2.3 Sea Trials and Stability Experiments

Paragraph 2.3.1 has been amended as follows.

#### 2.3.1 Sea Trials

**1** In the Classification Survey of all ships, sea trials specified in following **(1)** to **(12)** are to be carried out in full load condition, in the calmest possible sea and weather condition and in deep unrestricted water. However, where sea trials cannot be carried out in full load condition, sea trials may be carried out in an appropriate loaded condition. The noise measurements specified in **(11)** are to be carried out at either the full load condition or the ballast condition.

- (1) Speed test
- (2) Astern test
- (3) Steering test and the change-over test from the main to auxiliary steering gears
- (4) Turning test. The turning test of an individual ship may be dispensed with, provided that sufficient data is available from the turning test of a sister ship and subject to special approval by the Society.
- (5) Confirmation of no abnormality for the operating condition of machinery and behaviour of the ship during the trials
- (6) Performance test of windlasses
- (7) Performance test of automatic and remote control systems for main propulsion machinery, controllable pitch propellers, boilers and electric generating sets
- (8) Accumulation test of boilers
- (9) Measurement of torsional vibration for the shafting systems
- (10) Measurement of the sound pressure levels of fixed fire detection and fire alarm systems
- (11) Noise measurements
- (12) Other tests where deemed necessary by the Society

**2** In the steering test prescribed in **-1(3)**, the steering capabilities required by **15.2.2** and **15.2.3, Part D of the Rules** are to be confirmed. Where it is impractical to perform the test with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch, ships may demonstrate compliance with this requirement by one of the following methods:

- (1) During sea trials, the ship is at even keel and the rudder fully submerged whilst running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch (in case of the auxiliary steering gear, one half of this speed or 7 knots, whichever is greater).
- (2) Where full rudder immersion during sea trials cannot be achieved, an appropriate ahead speed is to be calculated using the submerged rudder blade area in the proposed sea trial loading condition. The calculated ahead speed is to result in a force and torque applied to the main steering gear which is at least as great as if it was being tested with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch (in case of the auxiliary steering gear, one half of this speed or 7 knots, whichever is greater).
- (3) The rudder force and torque at the sea trial loading condition have been reliably predicted and extrapolated to the full load condition. The speed of the ship is to correspond to the number of maximum continuous revolutions of the main engine and maximum design pitch of the

propeller (in case of the auxiliary steering gear, one half of this speed or 7 knots, whichever is greater).

~~23~~ The results of the tests specified in -1 are to be submitted to the Society as Sea trial records.

~~34~~ In the case of classification Survey of ships not built under the Society's survey, the above tests may be dispensed with, provided that sufficient data on the previous tests are available and no alteration affecting the tests specified in -1 have been made after the previous tests and the Society deems it appropriate.

#### EFFECTIVE DATE AND APPLICATION (Amendment 2-4)

1. The effective date of the amendments is 1 January 2016.
2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.  
(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less.

## Chapter 3      ANNUAL SURVEYS

Table B3.9 has been amended as follows.

Table B3.9      Special Requirements for Ships Carrying Liquefied Gases in Bulk

Items	Examinations
	(Omitted)
8 Stability Instrument	Functional tests are to be carried out on stability instruments fitted in accordance with the requirements of <b>2.2.3, Part N.</b>
<del>89</del> Miscellaneous	(Omitted)

### EFFECTIVE DATE AND APPLICATION (Amendment 2-5)

1. The effective date of the amendments is 1 July 2016.
2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date except for in cases where the amendments are to be retroactively applied.  
 (Note) The term “*a similar stage of construction*” means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less. However, when there is a requirement to apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date, the amendment may apply.

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# **GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS**

**Part B**

**Class Surveys**

**GUIDANCE**

**2015 AMENDMENT NO.2**

Notice No.33      8th May 2015

Resolved by Technical Committee on 2nd February 2015

AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Guidance for the survey and construction of steel ships” has been partly amended as follows:

## Part B CLASS SURVEYS

### Amendment 2-1

## B8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

### B8.1 Propeller Shaft and Stern Tube Shaft Surveys

Paragraph B8.1.3 has been amended as follows.

#### B8.1.3 Preventive Maintenance System

**1** The wording “Appropriate stern tube sealing devices as approved by the Society” ~~and devices for properly monitoring the bearing temperature specified in 8.1.3, Part B of the Rules, are specified respectively as follows~~ means stern tube sealing devices capable of being repaired and replaced without withdrawing the shaft.

~~(1) Stern tube sealing devices capable of being repaired and replaced without drawing the shaft~~  
~~(2) Either of the following devices to measure the temperature at the aft end bottom of the stern tube metal and a device to record the temperature:~~

~~(a) Two or more temperature sensors embedded in the metal~~

~~(b) An embedded temperature sensor replaceable from inboard the ship and a spare temperature sensor.~~

~~In this case, replacement with the spare sensor is to be demonstrated according to the procedures submitted beforehand.~~

**2** The preventive maintenance system specified in **8.1.3, Part B of the Rules**, is to be approved in accordance with the procedures specified in **Table B8.1.3-1**.

**3** The wording “where deemed appropriate by the Society” in **8.1.3, Part B of the Rules** means those cases where it is difficult to sufficiently draw out the propeller from the propeller shaft for those ships in which the distance between the propeller and the rudder plate is short and where no sign of slippage between the shaft and propeller has been confirmed. However, even in such cases, the propeller is to be drawn out from its shaft as far as possible and the condition of the propeller boss bore is to be checked by the surveyor.

**4** The wording “properly monitored” in **8.1.3(1), Part B of the Rules** as it pertains to “bearing temperature” means either of the following monitoring and recording devices is to be provided for measuring the temperature of the metal at the aft end bottoms of stern tubes:

(1) Two or more temperature sensors embedded into the metal

(2) An embedded temperature sensor which can be replaced from inside the ship and a spare temperature sensor.

In such cases, replacement by the spare sensor is to be demonstrated according to the procedures submitted beforehand.

**5** The wording “properly monitored” in **8.1.3(2), Part B of the Rules** as it pertains to “bearing temperature” means that at least one device is to be provided for measuring the temperature of the



metal at the aft end bottoms of stern tubes.

Table B8.1.3-1 has been amended as follows.

Table B8.1.3-1 Approval procedure of preventive maintenance system for oil lubricated propeller shafts

Item	Procedures
1. General	These Procedures will apply to ships intended for the preventative maintenance of propeller shafts as specified in <b>8.1.3, Part B of the Rules</b> . This system permits the shipowners to maintain the shafts using preventive measures such as by carrying out lubricating oil analysis regularly and diagnosing the lubricating condition of the shaft based on the results.
2. Application	<p>-1 The executive management (hereinafter referred to as a “management”) responsible for adopting the preventive maintenance system according to the Procedures is to submit to the Society three copies of the maintenance manual specifying at least the following items.</p> <ol style="list-style-type: none"> <li>(1) Management’s policy for implementing the preventive maintenance system</li> <li>(2) Procedures and personnel responsible for sampling oil, monitoring parameters such as oil analysis results and recording the necessary data</li> <li>(3) Procedures and personnel responsible for selecting and controlling the analytical testing machines (or testing laboratory) and the measuring devices for monitoring parameters</li> <li>(4) Procedures and personnel responsible for review of each parameter monitored and diagnosing the lubricating condition thereby</li> <li>(5) Procedures and personnel responsible for handling any abnormalities found (including those for reporting to the Society)</li> <li>(6) Procedures and personnel responsible for ensuring that proper maintenance is carried out according to the maintenance manual</li> </ol> <p>-2 The Society returns two copies of the documents to the applicant after review and approval. The management is to keep one copy of the approved documents on board the ship and the other copy of the approved documents either on hand or at the shipowner’s office.</p> <p>-3 The application is to be submitted within <i>6 months</i> from the date of completion of the Classification Survey or the previous Ordinary Survey of the propeller shaft. However, this 6 month period may be waived in cases where supplementary documentation confirming the soundness of the propeller shafting system is submitted.</p>
3. Approval and Notation	The Society examines the documents submitted and bases its approval on items such as the management system, the maintenance procedures and the criteria for parameters (including the criteria for alarm and abnormal conditions) of oil analysis results. The Society assigns approved ships with the notation (PSCM or PSCM • A) as classification characters.
4. Approval Conditions	<p>-1 Management system</p> <ol style="list-style-type: none"> <li>(1) The management is to state clearly that it will take responsibility for proper implementation of the preventive maintenance of the related parts according to the manual and familiarize the crew concerned with the procedures.</li> <li>(2) The management is to verify that parameters such as oil analysis results are all within their limits and to take suitable measures as necessary. The management is to report to the Society immediately where any abnormality is found.</li> <li>(3) The management is to verify that suitable maintenance is carried out according to the manual.</li> <li>(4) The items monitored or reviewed according to the manual are to be recorded.</li> </ol> <p>-2 Maintenance procedures</p> <ol style="list-style-type: none"> <li>(1) Oil sampling for analytical testing Oil sampling for analytical testing is to be carried out regularly at the intervals of at least <i>6 months</i> and the procedures are in accordance with the following. <ol style="list-style-type: none"> <li>(a) Sampling is to be carried out at sea as much as possible. The sampling oil quantity is about 200 <i>ml</i> and it is to be always from a fixed place after fully draining. For example, the air purge pipe at the pump exit or oil sample cock; places where the sampled oil can be representative of the system.</li> <li>(b) Where the sampling can only be conducted at port, the sampling is to be carried out after</li> </ol> </li> </ol>

sufficient circulation of the oil with an oil pump if one is available, and according to the method in (a) above. Otherwise, the oil is to be sampled from a few points at different levels and all the samples are mixed together as the testing sample.

(2) Monitoring and recording of parameters

Monitoring and recording of each parameter is to be properly carried out and the following data is to be recorded at each sampling.

- (a) Temperature of the circulation oil
- (b) Temperature of the aft stern tube bearing
- (c) Sampling date, service oil name, service hours, total oil quantity and oil consumption rate (*l/day*)

(3) Testing machines and measuring devices for monitoring parameters

The testing machines and measuring devices for monitoring the parameters specified in **8.1.3, Part B of the Rules** are to have their accuracy confirmed and calibrated properly.

-3 Criteria for parameters

The management is to determine the criteria for each parameter for the ship based on the reference standards below and by taking into account its experience and knowledge.

(1) Oil analysis

(a) Analytical items and methods:

Refer to **Table 1** as a standard. However, alternative analytical items and methods can be adopted instead where deemed appropriate by the Society.

Table 1 Standard criteria (Reference)

analytical items	max. values	analytical methods
Fe ( <i>ppm</i> )	50	ICP (SOAP)
Sn ( <i>ppm</i> )	20	ICP (SOAP)
Pb ( <i>ppm</i> )	20	ICP (SOAP)
Na ( <i>ppm</i> )	80	ICP (SOAP)
IR Oxidation @ 5.85 $\mu\text{m}$ ( <i>Abs. unit/cm</i> )	10	FT-IR
Separated Water (%)	1	Visual(24 settling hrs)

(b) Standard criteria:

To be within the max. values specified in **Table 1** counting from the values of the new oil

(c) Alarm values:

To be less than double the standard criteria (where any parameter exceeds the alarm value, the testing oil is to be re-sampled and re-analysis for all the items is to be carried out immediately)

(2) Lubricating oil consumption rate:

2 *l/day* or less

(3) Temperature at aft. stern tube bearing:

55°C or less

(4) Wear down for oil lubricated bearing:

0.3 *mm* or less

5. After Approval

-1 The parameters are to be monitored and recorded onboard the ship in accordance with the approved manual, and the lubricating condition of the propeller shafts is to be diagnosed thereby. Where any abnormality is found, the management is to report it to the Society as soon as possible and withdraw the shaft for a thorough examination or carry out maintenance to the shaft as necessary.

-2 The management is to ~~submit~~ maintain onboard the analysis records of the analysis with the data specified in 4.-2(2) after every analysis of the sample oil. In the documents, the management's opinion, such as on the necessity for withdrawing the propeller shaft, is to be included.

-3 The Society will carry out general examinations on the related propeller shafting parts and review each record of parameters monitored at the ship's periodical surveys to verify that appropriate maintenance is carried out in compliance with the approved manual, and notify the ship's management of any necessary maintenance. Where any abnormality or improper maintenance is found out through the examination, the management is required to apply for an Open-up Survey of the propeller shaft.

-4 The ship is to undergo the examinations specified in **Table B8.1, Part B of the Rules** (excluding survey items 2, 3 and 5 for parts covered by the preventive maintenance system) at the propeller shaft surveys in accordance with **1.1.3-1(6), Part B of the Rules**. However, for propeller shafts with keyless propeller attachments or having coupling flanges at the aft end, survey items 1, 6 and 7 in **Table B8.1, Part B of the Rules** may be extended until the earlier date of the following (1) or (2);

	<p>(1) The date when the propeller shaft is withdrawn for an examination due to some reason such as an abnormality being found by the analysis of monitoring parameters</p> <p>(2) The date five <i>years</i> after the propeller shaft survey (excluding survey items 1, 6 and 7 in <b>Table B8.1, Part B of the Rules</b>) was completed</p>
6. Cancellation of Approval	<p>Where the following -1 to -3 is applicable, the Society may cancel the ship's approval to adopt the preventive maintenance system for the propeller shaft. In this case, the Society notifies the ship's management of the cancellation, and the ship is to undergo the propeller shaft survey immediately in accordance with the requirements of <b>8.1.1, Part B of the Rules</b>.</p> <p>-1 Where any improper conduct is found regarding entries in the records such as for oil analysis results.</p> <p>-2 Where it is regarded by the Society that proper maintenance is not carried out according to the approved manual.</p> <p>-3 Where the shipowner or ship management company has changed, or cancellation of the approval to adopt the preventive maintenance system has been requested by the ship's management.</p>

## **Annex B2.3.1-1(11) PROCEDURES FOR ON BOARD NOISE MEASUREMENTS**

### **Chapter 5 ACOUSTIC INSULATION BETWEEN ACCOMMODATION SPACES**

Section 5.2 has been amended as follows.

#### **5.2 Measurements of Airborne Sound Insulation Properties**

Materials used to comply with the requirements of 5.1 are to be one of the following (1) to (3):

- (1) Materials whose ~~airborne~~ sound insulation properties are ~~to be~~ determined by laboratory tests in accordance with ISO 10140-2:2010, and ~~are to be~~ approved by the Administration ~~or~~;
- (2) Materials which are approved by the Society in accordance with **Chapter 6, Part 4 of the GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE**; or
- (3) Materials whose airborne sound insulation properties are determined by laboratory tests in accordance with ISO 10140-2:2010 and deemed equivalent to those listed in (1) or (2) above.

#### **EFFECTIVE DATE AND APPLICATION (Amendment 2-1)**

- 1. The effective date of the amendments is 8 May 2015.**

## B1 GENERAL

### B1.1 Surveys

#### B1.1.3 Intervals of Class Maintenance Surveys

7 Occasional Surveys specified in **1.1.3-3(5), Part B of the Rules** are as specified below:

Sub-paragraphs -7(17) and (18) have been added as follows.

(17) Stability Instruments for Ships Carrying Dangerous Chemicals in Bulk

For ships carrying dangerous chemicals in bulk which had been at the beginning stage of construction before 1 January 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part S of the Rules** by the first scheduled special survey on or after 1 January 2016 but not later than 1 January 2021.

(18) Stability Instruments for Ships Carrying Liquefied Gases in Bulk

For ships carrying liquefied gases in bulk which had been at the beginning stage of construction before 1 July 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part N of the Rules** by the first scheduled special survey on or after 1 July 2016 but not later than 1 July 2021.

#### EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2016.

## B2 CLASSIFICATION SURVEYS

### B2.1 Classification Survey during Construction

#### B2.1.4 Presence of the Surveyor

Sub-paragraph -1 has been amended as follows.

**1** At the surveys for fire extinguishing systems referred to in **2.1.4-1(15), Part B of the Rules**, the following examinations are to be carried out. Where it is impractical to carry out the examinations on board the ship, the examinations may be replaced with examinations carried out at the place of manufacture under the presence of the Surveyor.

((1) and (2) are omitted.)

(3) For fire extinguishing systems, fire detecting systems and manually operated call points:

(a) Fire main line including associated pumps

- i) Confirmation that each fire main pump can be operated separately so that two jets of water (at least 12 *m*) are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main
- ii) For emergency fire pumps, as **i)** above. Performance tests are to be carried out at the shallowest draught possible. This draught need not be shallower than the one corresponding to the lightest seagoing condition.
- iii) For ships having an operating system for periodically unattended machinery space, an operation test of the remote control system or automatic operation system of one pump
- iv) For ships employing permanent pressurization of the fire main system, a pressure test for ordinarily pressurized parts of the system with a pressure 1.5 times the working pressure
- v) For mobile water monitors, the test specified in **10.7.3-2(5), Part R of the Rules**

((b) to (j) are omitted.)

((4) is omitted.)

### B2.3 Sea Trials and Stability Experiments

#### B2.3.1 Sea Trials

Sub-paragraph -3 has been amended as follows.

**3** The Steering test and change-over test from main to auxiliary steering gears required by **2.3.1-1(3), Part B of the Rules** are to be carried out in accordance with the following **(1)** through **(14)** in addition to **2.3.1-2, Part B of the Rules**. However, the tests required in **(43)**, **(76)**, **(87)**, **(98)**, **(109)** and **(110)** may be dispensed with where such tests have been carried out either at dockside or in dry dock.

~~(1) Tests of the steering capabilities specified in **15.2.2** and **15.2.3, Part D of the Rules**. Where~~

~~the ship cannot be tested in the full load condition, the ship is to be tested in accordance with any of the following except in cases where specially provided for by the flag state. In such cases, the ship speed at maximum continuous revolutions of the main engine is to be used instead of the speed specified in 2.1.8, Part A of the Rules. If the ship is fitted with a controllable pitch propeller, the main steering gear test is to be carried out at the maximum design pitch approved by the Society for the number of maximum continuous revolutions.~~

~~(a) Tests are to be carried out on the condition that the rudder is fully submerged (at zero speed waterline) and the vessel is in an acceptable trim condition.~~

~~(b) Tests are to be carried out on the condition that rudder load and torque at the trial loading condition have been reliably predicted and extrapolated to the full load condition.~~

- ~~(21)~~ Running tests of the power units, including transfer between power units
- ~~(32)~~ Isolation tests of one hydraulic actuating system including checking the time for regaining steering capability
- ~~(43)~~ Tests of the hydraulic fluid recharging system
- ~~(54)~~ Tests of the emergency power supply required by **15.2.6, Part D of the Rules**
- ~~(65)~~ Operation tests of controls, including change-over between two control systems, change-over between the control system and the controller provided in the steering gear compartment, and change-over between automatic steering and manual steering
- ~~(76)~~ Tests of the means of communication between the navigating bridge and the engine room, and between the engine room and the steering gear compartment
- ~~(87)~~ Function tests of indicators for alarms, rudder angle indicator and power units required by **Chapter 15, Part D of the Rules**
- ~~(98)~~ Function tests of indicators for power failure and overcurrent alarms, operating condition of electric motor, and relief valves for preventing overpressure
- ~~(109)~~ Function tests of the rudder stoppers
- ~~(1110)~~ Where the steering gear is designed to avoid hydraulic locking, a demonstration of this feature

#### EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 January 2016.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.  
(Note) The term “*a similar stage of construction*” means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less.

## B2 CLASSIFICATION SURVEYS

### B2.3 Sea Trials and Stability Experiments

#### B2.3.2 Stability Experiments

Sub-paragraph -8 has been added as follows.

(-1 to -6 are omitted.)

**7** The functional tests specified in **2.3.2-4, Part B of the Rules** are to be carried out in accordance with **Annex U1.2.2 “GUIDANCE FOR STABILITY COMPUTER”, Part U of the Guidance**. “A computer for stability calculation is on board the ship as a supplement to the stability information booklet,” stipulated in **2.3.2-4, Part B of the Rules**, refers to a computer for stability calculation or a computer in which software for stability calculation is installed that can be used at locations such as the navigation bridge and cargo control room.

**8** With respect to the operation manuals and the functional tests for stability instruments specified in **2.3.2-5, Part B of the Rules**, reference is to be made to Chapter 4, Part B of *IMO resolution MSC.267(85) “International Code on Intact Stability, 2008 (2008 IS Code)”*.

## B3 ANNUAL SURVEYS

### B3.5 Special Requirements for Ships Carrying Dangerous Chemicals in Bulk

Paragraph B3.5.2 has been amended as follows.

#### B3.5.2 Examinations

**1** “Alternative examinations considered appropriate by the Society” stipulated in item ~~7~~**8** of **Table B3.10, Part B of the Rules** refers to performance tests of cross flooding equipment to confirm whether the equipment is in good working order.

**2** With respect to the functional tests specified in item 7 of **Table B3.10, Part B of the Rules**, reference is to be made to the requirements related to annual surveys specified in Chapter 4, Part B of *IMO resolution MSC.267(85) “International Code on Intact Stability, 2008 (2008 IS Code)”*.

## **B5 SPECIAL SURVEYS**

### **B5.2 Special Surveys for Hull, Equipment, Fire extinction and Fittings**

#### **B5.2.3 Performance Test**

Sub-paragraph -1 has been amended as follows.

**1** The performance test of computers for stability calculation which are fitted on board the ship as a supplement to stability information booklets is to be carried out in the presence of the Surveyor according to the procedures specified in **(1)** to **(3)** below, so as to ensure that the stability computer is working correctly.

- (1) Retrieve all of the test loading conditions which were used for the accuracy check and are specified in the operation manual, carry out a stability calculation and compare stability results with those in the operation manual.
- (2) Change several items of input data sufficiently to change the draught or displacement by at least 10%. The results are to be reviewed to ensure that they differ in a logical way from those of the test condition as mentioned in **(1)** above.
- (3) Revise the modified load condition as mentioned in **(2)** above to restore the initial test condition as mentioned in **(1)** above and compare the results.

### **B5.5 Special Requirements for Ships Carrying Dangerous Chemicals in Bulk**

Paragraph B5.5.2 has been amended as follows.

#### **B5.5.2 Examinations**

**1** The wording “hazardous areas” in item 5 of **Table B5.28, Part B of the Rules** refers to the hazardous areas specified in **4.2.3-2, -4 and -5, Part H of the Rules**.

**2** In applying **5.5.2, Part B of the Rules**, with respect to the functional tests specified in item 7 of **Table B3.10, Part B of the Rules**, reference is to be made to the requirements related to renewal surveys specified in Chapter 4, Part B of *IMO resolution MSC.267(85) “International Code on Intact Stability, 2008 (2008 IS Code)”*, notwithstanding the requirements of **B3.5.2-2**.



## EFFECTIVE DATE AND APPLICATION (Amendment 2-4)

1. The effective date of the amendments is 1 January 2016.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date except for in cases where the amendments are to be retroactively applied.

(Note) The term “*a similar stage of construction*” means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less. However, when there is a requirement to apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date, the amendment may apply.

## B3 ANNUAL SURVEYS

### B3.4 Special Requirements for Ships Carrying Liquefied Gases in Bulk

Paragraph B3.4.2 has been amended as follows.

#### B3.4.2 Examinations

1 (Omitted)

2 In application of items 1 and ~~8~~9(h) of **Table B3.9, Part B of the Rules**, cargo tanks and cargo piping that are not earthed to the hull structure by bonding straps are to be tested at each place to confirm that the resistance is not greater than 1 *MΩ*.

3 (Omitted)

4 “Alternative examinations considered appropriate by the Society” stipulated in item ~~8~~9 of **Table B3.9, Part B of the Rules** refers to performance tests of cross flooding equipment to confirm whether the equipment is in good working order.

5 With respect to the functional tests specified in item 8 of **Table B3.9, Part B of the Rules**, reference is to be made to the requirements related to annual surveys specified in Chapter 4, Part B of *IMO resolution MSC.267(85) “International Code on Intact Stability, 2008 (2008 IS Code)”*.

## B5 SPECIAL SURVEYS

### B5.4 Special Requirements for Ships Carrying Liquefied Gases in Bulk

#### B5.4.2 Examinations

Sub-paragraph -3 has been added as follows.

1 The wording “programs and acceptance criteria approved in advance” in item 2 of **Table B5.27, Part B of the Rules** refers to the programs and acceptance criteria prepared by cargo containment systems’ designers and approved by the Society in accordance with the provisions of **4.7.7, Part N of the Rules**.

2 The wording “hazardous areas” in item 6 of **Table B5.27, Part B of the Rules** refers to the hazardous areas specified in **4.2.3-3, -4 and -5, Part H of the Rules**.

3 In applying **5.4.2, Part B of the Rules**, with respect to the functional tests specified in item 8 of **Table B3.9, Part B of the Rules**, reference is to be made to the requirements related to renewal surveys specified in Chapter 4, Part B of *IMO resolution MSC.267(85) “International Code on Intact Stability, 2008 (2008 IS Code)”*, notwithstanding the requirements of **B3.4.2-5**.

## EFFECTIVE DATE AND APPLICATION (Amendment 2-5)

1. The effective date of the amendments is 1 July 2016.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date except for in cases where the amendments are to be retroactively applied.

(Note) The term “*a similar stage of construction*” means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is the less. However, when there is a requirement to apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date, the amendment may apply.