RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part B Class Surveys

2023 AMENDMENT NO.1

Rule No.29 30 June 2023

Resolved by Technical Committee on 25 January 2023

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.29 30 June 2023
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 1-1

Chapter 1 GENERAL

1.4 Preparation for Survey and Other Items

1.4.2 Preparation for Surveys*

Sub-paragraph -2 has been amended as follows.

2 An applicant is to submit a Survey Programme (e.g. **Survey Programme and Survey Planning Questionnaire for BC and OC** or **Survey Programme and Survey Planning Questionnaire for OT and CT**) that details survey items as part of the preparation for the Special Survey of oil tankers, bulk carriers and ships carrying dangerous chemicals in bulk with integral tanks and for the Intermediate Surveys of bulk carriers, oil tankers and ships carrying dangerous chemicals in bulk with integral tanks over 10 *years* of age. To ships which do not engage in international voyage and classed for restricted service, such as having the class notation "*Coasting Service*", "*Smooth Water Service*", etc., this requirement need not apply.

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.2 Submission of Plans and Documents for Approval*

Sub-paragraph -7 has been amended as follows.

7 For ships carrying liquefied gases in bulk, an operation manual stipulated in **18.2.1, Part N** is to be submitted for approval by the Society. ~~For ships carrying dangerous chemicals in bulk, an operation manual stipulated in **16.1.1, Part S** is to be submitted for approval by the Society.~~

2.1.6 Documents to be Maintained On Board*

Sub-paragraph -1 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.

(1) Documents approved by the Society or their copies

((a) to (f) are omitted.)

~~(g) Operation manuals for ships carrying dangerous chemicals in bulk (**16.1.1, Part S**)~~

((h) to (t) are omitted.)

((2) and (3) are omitted.)

2.2 Classification Survey of Ships Not Built under Survey

2.2.1 General*

Sub-paragraph -4 has been amended as follows.

4 For ships carrying liquefied gases in bulk, the operation manual stipulated in **18.2.1, Part N** is to be submitted for approval by the Society. ~~For ships carrying dangerous chemicals in bulk, the operation manual stipulated in **16.1.1, Part S** is to be submitted for approval by the Society.~~

Chapter 8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

Table B8.1 has been amended as follows.

Table B8.1 Approval Procedure of Preventive Maintenance System for Oil Lubricated Propeller Shafts

Item	Procedures
(Omitted)	
2 Application	(1) The executive management (hereinafter referred to as "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 **(a)** to **(f)**~~.~~ together with the application form (**Form PSCM-1**). ((a) to (f) are omitted.) ((2) and (3) are omitted.)
(Omitted)	

Annex 9.1.3 PROCEDURES FOR THE APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE

An 1.2 Application for Approval

Paragraph An 1.2.1 has been amended as follows.

An 1.2.1 Application Form

Applicants for software approval are to submit an application form (~~**Form 1**~~**Form-PMSsoftware**) to the Society.

Form 1 has been deleted.

~~Form 1~~
~~(Omitted)~~

FFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2023.

Amendment 1-2

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 **(13)** 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

(a) For ships that are to perform the speed test in full load condition, the ship speed defined in **2.1.8, Part A** is to be confirmed. For ships that are unable to perform the speed test in full load condition, the ship speed at maximum continuous revolution of the main engine is to be confirmed. This speed is referred to as the "maximum speed of the ship" hereinafter.

(b) The ship speed at main engine outputs specified in **Table B2.2** (not including 110% and minimum revolutions) is also to be confirmed.

(2) Astern test~~:~~

(a) The test is to be carried out in accordance with **~~(a~~i)** and **~~(b~~ii)** below and the items regarding stopping ability specified in **An1.4.3, Annex 2.3.1-1** "Guidance for the Test of Ship Manoeuvrability" are to be measured.

~~(a~~i) While the ship is running ahead at maximum speed, an order for full astern is issued and the reversing operation from ahead run to full astern run is carried out as quickly as possible.

~~(b~~ii) For ships that are unable to perform the test at maximum speed, the ship is to run ahead at not less than the speed specified in **An1.1.1-9, Annex 2.3.1-1** "Guidance for the Test of Ship Manoeuvrability". While the ship is at this speed, an order for full astern is issued and the reversing operation from ahead run to full astern run is carried out as quickly as possible.

In applying this provision, the tests are to be carried out from all control positions where there are multiple control positions for the reversing operation to astern run.

(b) It is to be confirmed that the machinery is functioning normally while the ship is running astern. The main engine is to be kept at a rate of more than 70% of the maximum continuous revolutions. The ship is to be kept running astern for the periods specified in **i)** and **ii)** below corresponding to the type of engine and the performance is to be confirmed in accordance with **1.3.2, Part D**.

~~(a~~i) For ships with main engines other than steam turbines

Until the astern speed (rotational speed in rpm) stabilizes.

~~(b~~ii) For ships with steam turbines

A period of at least 15 *minutes*; the astern trial, however, is to be limited to 30 *minutes* or in accordance with manufacturer's recommendation to avoid overheating of the turbine due to the effects of "windage" and friction.

(c) For low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled dual fuel engines, the confirmation specified in **(b)(1)** is to be carried out for all operating modes (i.e. the

applicable gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (*See* **2.5.1-1(1) in Annex 1.1.3-3, Part GF** or **2.5.1-1(1) in Annex 16.1.1-3, Part N**).

(d) To high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in **(c)** apply mutatis mutandis.

(3) Steering test and the change-over test from the main to auxiliary steering gears. In the case of waterjet propulsion systems or azimuth thrusters, however, tests are to be as otherwise stipulated by the Society.

(a) In the steering test, the steering capabilities required by **15.2.2** and **15.2.3**, **Part D** 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:

i) 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).

ii) 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).

iii) 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).

(b) The Steering test and change-over test from main to auxiliary steering gears are to be carried out in accordance with the following **i)** through **x)** in addition to **(a)**. However, the tests required in **iii)**, **vi)**, **vii)**, **viii)**, **ix)** and **x)** may be dispensed with where such tests have been carried out either at dockside or in dry dock.

i) Running tests of the power units, including transfer between power units

ii) Isolation tests of one hydraulic actuating system including checking the time for regaining steering capability

iii) Tests of the hydraulic fluid recharging system

iv) Tests of the emergency power supply required by **15.2.6, Part D**

v) 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

vi) Tests of the means of communication between the navigating bridge and the engine room, and between the engine room and the steering gear compartment

vii) Function tests of indicators for alarms, rudder angle indicator and power units required by **Chapter 15, Part D**

viii) Function tests of indicators for power failure and overcurrent alarms, operating condition of electric motor, and relief valves for preventing overpressure

ix) Function tests of the rudder stoppers

x) Where the steering gear is designed to avoid hydraulic locking, a demonstration of this feature

(4) Turning test.

The tests are to be carried out in accordance with **(a)i)** and **(b)ii)** below. 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.

(a)i) A ship is steered to the left or right at the maximum rudder angle (normally 35 *degrees*, however, where a special rudder is provided, a different rudder angle considered appropriate by the Society) while running ahead at the maximum speed, and this rudder angle is to be kept until the ship makes a 360 *degree* circle. The turning ability specified in **An1.4.2, Annex 2.3.1-1** "Guidance for the Test of Ship Manoeuvrability" is to be measured and the ship's stability during the turn is to be confirmed.

(b)ii) Notwithstanding the requirements in **(1)**, for ships that are unable to perform the test at maximum speed, the ship is to run ahead at not less than the speed specified in **An1.1.1-9, Annex 2.3.1-1** "Guidance for the Test of Ship Manoeuvrability". While the ship is at this speed, the ship is steered to the left or right at the maximum rudder angle (normally 35 *degrees*, however, where a special rudder is provided, a different rudder angle considered appropriate by the Society), and this rudder angle is kept until the ship makes a 360-*degree* circle.

(5) Confirmation of no abnormality for the operating condition of machinery and behaviour of the ship during the trials

The performance tests of machinery installations are to include the following **(a)** to **(j)** in order to verify that the machinery installations have sufficient normal functions and reliability and are free from detrimental vibration within the numbers of revolutions used. However, these tests may be dispensed with where such tests have been conducted while the ship was anchored or at dockside. The preparations specified in **2.6.1-2(1), Part D** are to be made before tests are carried out.

(a) For reciprocating internal combustion engines, the output test shown in **Table B2.2**, is to be used as the standard. For reciprocating internal combustion engines driving generators or auxiliary machinery (excluding auxiliary machinery for specific uses), operating tests may be carried out at the appropriate time after installation on board.

(b) For steam turbines and gas turbines used as main propulsion machinery, the output test is to be carried out at 3 or 4 levels of power output selected from normal continuous cruise power run and 4/4, 3/4, 2/4 and 1/4 of the maximum continuous output of the engine.

(c) Operating tests for starting devices

It is to be confirmed that the engines start continuously for the number required by **2.5.3-2** or **4.4.3-2, Part D**.

(d) Function tests of the alarms and safety devices

Function tests of the alarms and safety devices required by **2.4**, **3.3** and **4.3, Part D** are to be carried out.

(e) Fuel suitability

The suitability of residual and other special fuels for use in the engine is to be confirmed. However, this test may be dispensed with where the suitability has already been demonstrated at the shop trial.

(f) Governor tests

For reciprocating internal combustion engines driving main sources of electrical power (including reciprocating internal combustion engines driving generators for both propulsion and main power supply), the characteristics for governors specified in **2.4.1-5(1), Part D** are to be confirmed.

(g) Low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled engines are to comply with the requirements specified in **(a)** and **(g)**. For low pressure gas-fuelled dual fuel engines, the output tests and governor tests are to be carried out for all operating modes (i.e. the gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (*See* **2.5.1-1(1) in Annex 1.1.3-2, Part GF** or **2.5.1-1(1) in Annex 16.1.1-2, Part N**). The 110% load test is not required for the gas mode.

(h) To high pressure gas-fuelled engines, the requirements for low pressure gas-fuelled engines specified in **(i)** apply mutatis mutandis.

(i) Function tests of the safety devices and alarms of boilers

(j) Function tests of the safety devices and alarms of exhaust gas economizers

(6) Performance test of windlasses

Each windlass is to be tested in accordance with the following **(a)** to **(c)** under working conditions after installation on board in order to demonstrate satisfactory operation and confirm that their construction and associated equipment are in good condition.

(a) Operation test

Each unit is to be independently tested for **i)** to **viii)** below:

i) Braking

ii) Clutch functioning

iii) Lowering and hoisting of the chain cable and the anchor

iv) Proper riding of the chain cable over the cable lifter

v) Proper transit of the chain cable through the hawse pipe and the chain pipe

vi) Effecting proper stowage of the chain cable and the anchor

vii) Proper seating of the anchors in the stored position

viii) Proper function of the chain cable stoppers if fitted

(b) Load test

Initially with 3 shots of chain cable (82.5 *m* or 45 *fathoms* in length) and the anchor submerged and hanging free, the test is to be carried out in accordance with the manner specified in **i)** to **iii)** below. For **i)** and **ii)**, it is to be measured and verified that the mean hoisting speed is not less than 0.15 *m/s*. Where it is difficult to have 3 shots of chain cable kept submerged due to the ship's locale, an alternative test approved by the Society may be employed.

i) Hoisting up 2 shots of chain cable on one side

ii) Hoisting up 2 shots of chain cable on the other side of **i)**

iii) Hoisting up one shot of chain cable together on both sides

(c) Cable lifter brake capacity test

The braking capacity is to be tested by intermittently paying out and holding the chain cable by means of the application of the brake at every 1/2 shot of chain cable.

(7) Performance test of automatic and remote control systems for main propulsion machinery, controllable pitch propellers, boilers and electric generating sets

The tests are to be carried out in accordance with the following **(a)** to **(e)**. However, where these tests have been carried out when the ship was anchored or at dockside, some of these tests may be dispensed with at the sea trial.

(a) The control systems for main propulsion machinery and controllable pitch propellers are to be subjected to the following **i)** to **iv)**.

i) The main propulsion machinery or the controllable pitch propellers are to be subjected to starting tests, ahead-astern tests and running tests in the whole range of output, by means of the remote control devices in the main control station or the main control station on the bridge.

ii) In addition to output increase and decrease tests, the operation tests of the main

propulsion machinery or the controllable pitch propellers using the bridge control devices are to be carried out. Where operation tests were carried out for the entire output range by the bridge control devices, consideration may be given to reduction of the test items with the exception of the starting test.

iii) Where there are two or more control stations for main propulsion machinery or controllable pitch propellers, the test on transfer of control is to be carried out while the ship is running ahead and when it is running astern. Where the remote devices for main propulsion machinery or controllable pitch propellers is in accordance with **18.3.2-2(3)(b), Part D**, the above-mentioned test may be carried out while the main propulsion machinery is stopped.

iv) After completion of the test on transfer of control specified in **iii)**, a demonstration that the main propulsion machinery or the controllable pitch propellers can be smoothly operated from the respective control stations is to be conducted.

(b) Boilers

Function tests of the control systems for boilers are to be carried out in accordance with the following **i)** to **iii)**.

i) It is to be confirmed that devices such as for feed water control and combustion can operate stably in response to load variations of the main boilers, and the main boilers can supply steam stably to main propulsion machinery, electric generating sets and auxiliary machinery essential for main propulsion of the ship without local manual operation.

ii) With respect to essential auxiliary boilers, it is to be confirmed that they can supply steam stably to auxiliary machinery essential for main propulsion of the ship without manual operation.

iii) Where an exhaust gas economizer is used as a source of steam for driving a generator and the boiler supplies extra steam automatically during power loss, operation tests of the automatic control devices for this system are to be carried out.

(c) Electric Generation Sets

Where generators supply electrical power to the loads necessary for propulsion of the ship, their motive power is relying upon the propulsion systems, tests of functioning of the systems of automatic or remote control of electric generating sets are to be carried out.

(d) For the electric generating sets specified in **3.2.1-3, Part H** the following items are to be confirmed while the main propulsion machinery is operating in normal continuous cruise output. However, in cases where the main propulsion machinery is operating at an output other than normal continuous cruising output, the tests may be carried out while main propulsion machinery is operating at said output on the condition that all active peripheral equipment are operating at outputs that are the same as the normal continuous cruising output of the main propulsion machinery.

i) Where only one electric generating set is normally used, the standby generator, air circuit breakers, and important auxiliary machinery start up automatically when the main source of electrical power is stopped by tripping a circuit breaker

ii) Where two electric generating sets are normally used, preference tripping of unnecessary loads is performed and propulsion and steering of the ship are maintained, when the circuit breaker of one of the sets is tripped

(e) The "electric generating sets specified in **3.2.1-3, Part H**" mentioned in **(d)** above, refer to the application of **6.2.11-1** and **-3, Part H** for the ships specified in **6.1.1, Part H**.

(8) Accumulation test of boilers

The accumulation tests of boilers are to be carried out in accordance with the following **(a)** to

(c).

(a) The accumulation test is to be conducted as specified in **i)** and **ii)** below while the boiler is under the maximum firing condition. However, where data on the evaporation of the boiler submitted to the Society has been approved, the accumulation test specified in **i)** may be dispensed with.

i) When the safety valves of the boiler blow with all the stop valves closed, except for the valves for steam supply to machinery necessary to operate the boiler, the accumulation of pressure in the boiler drum is not to exceed 110% of the approved working pressure. However, the feed water necessary to maintain a safe water level may be supplied.

ii) For boilers with a superheater, where the accumulation test might overheat the superheater, the operation test of the means specified in **9.9.3-8, Part D** of the Rules may be carried out as an alternative after shutting off the main steam supply. In this case, the lift of each safety valve is to be checked beforehand.

(b) The accumulation test specified in **(a)** may be carried out at an appropriate time when the ship is anchored or at dockside.

(c) For boilers which are capable of refiring while using an exhaust gas economizer, in principle, the accumulation test is to be carried out in accordance with the methods specified in **(a)i)** and **ii)** under the maximum firing condition and at the maximum continuous output of the main engine.

(9) Measurement of torsional vibration for the shafting systems

The measurements of the torsional vibration for shafting systems are to be carried out in accordance with the following **(a)** to **(c)**.

(a) Measurements are to be carried out in accordance with the requirements of **8.1.3, Part D**. In cases where the confirmation of engine running conditions specified in **8.1.3-2, Part D** is performed at the estimated upper and lower borders by calculation, it is recommended that the fuel index around estimated borders also be confirmed with consideration given to possible differences between estimated borders and actual borders confirmed through measurements.

(b) For low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled dual fuel engines, the measurements specified in **(a)** are to be carried out for both the diesel and gas mode. However, measurements in either diesel mode or in the gas mode (but not both modes) may be omitted where considered appropriate by the Society based upon relevant torsional vibration calculation sheets of diesel and gas mode.

(c) For high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in **(b)** apply mutatis mutandis.

(10) Measurement of the sound pressure levels of fixed fire detection and fire alarm systems

With respect to the measurement of the sound pressure levels of fixed fire detection and fire alarm systems, the sound levels specified in **29.2.5-1(9), Part R** are to be carried out by suitable instrument.

(11) Noise measurements. The measurements are to be in accordance with **Annex 2.3.1-2 "Procedures for on board Noise Measurements"**.

(12) Verification of Total Harmonic Distortion (THD) calculation report and harmonic filter operation guide

"Verification of Total Harmonic Distortion (THD) calculation report" refers to the measuring of the Total Harmonic Distortion (THD) value of the main busbar so as to confirm that said value does not exceed the acceptable limit given in the report.

(13) 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).~~

~~**3**~~**2** The results of the tests specified in **-1** are to be submitted to the Society as Sea trial records.

~~**4**~~**3** 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.

Table B2.2 Sea Trials of Reciprocating Internal Combustion Engines

Test items		Use of engines		
		Main engines of ships in which reciprocating internal combustion engines are used as main propulsion machinery (excluding electric propulsion ships) (1)	Reciprocating internal combustion engines driving generators (including main engines of electric propulsion ships) (2)	Reciprocating internal combustion engines driving auxiliaries (excluding auxiliary machinery for specific use etc.)
Load test	110% power run	—	10 *minutes* at n_0 (n_0 is the rated engine speed.) (3)	—
	100% power (rated power) run	4 *hours* at engine speed in accordance with propeller curve (4) (5) (6)	1 *hour* at n_0 (3)	30 *minutes* at n_0
Overspeed run		30 *minutes* at 1.032n_0 or more (7) (8)	—	—
Minimum revolution test of main engine (9)		○(7)	—	—
Intermittent overload (10)		○		○

Notes:

(1) After testing has been completed, the fuel delivery system is to be blocked so as to limit the engines to run at not more than 100% power, excluding propulsion engines for which intermittent overload is approved as well as propulsion engines also driving generators.

(2) The tests are to be performed based on the rated electrical powers of the driven generators.

(3) This may, if possible, be done during the electrical propulsion plant test, which is tested at 100% propulsion power (i.e., total electric motor capacity for propulsion) by distributing the power on as few generators as possible. The duration of this test is to be sufficient to reach the stable operating temperatures of all rotating machines or for at least 4 hours. When some of the generator set(s) cannot be tested due to insufficient time during the propulsion system test mentioned above, those required tests are to be carried out separately.

(4) In the case of controllable pitch propellers, the test is to be performed at rated engine speed n_0 at a propeller pitch leading to 100% power, or to the maximum achievable power if 100% power cannot be reached.

(5) In the case of propulsion engines also driving generators, tests are to be also carried out for 2 hours at 100% propeller branch power (unless already covered in the test at 100% power) and 1 hour with 100% power take off branch power at rated engine speed n_0 in addition to the test for 4 hours at 100% power.

(6) For ships in which the tests specified in **2.2.5-2(1), Rules for Automatic and Remote Control Systems** are performed for not less than 4 hours at 100% power, the 100% power test specified in this table may be omitted.

(7) Only for engines driving fixed pitch propellers.

(8) The test may be omitted if a 100% power test is performed at 1.032n_0 or more. In cases where engine speed cannot reach the specified speed due to the planned propeller curve, etc., an overspeed test may be performed at maximum achievable continuous revolution (i.e., maximum engine speed within the range of torque limit, etc.).

(9) The test is to be carried out to identify the minimum working revolution of the main engine when the ship is steered to the maximum rudder angle.

(10) Only for engines for which intermittent overload is approved. The test is to be performed for the duration agreed upon with the manufacturer.

Chapter 3 ANNUAL SURVEYS

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

3.2.2 General Examination*

Table B3.2 has been amended as follows.

Table B3.2 General Examination (Continued)

Items	Examination
(1 to 25 are omitted.)	
26 Arrangements of ballast piping systems	(1) Confirmation that ballast piping systems are not connected to fuel oil tanks. However, the requirements may be dispensed with when ballast piping systems are provided with suitable arrangements which comply with **13.5.1-11, Part D**.
Additional Requirement for Tankers, Ships Carrying Dangerous Chemicals in bulk and Ships Carrying Liquefied Gases in bulk	
2~~6~~7 Piping	(1) Confirmation that cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other piping in cargo pump room, cargo compressor rooms and on weather decks are in good condition. (2) Confirmation that the earthing between hull structures and cargo piping systems (cargo oil pipes, vent pipes, tank washing pipes, etc.) is in good condition.
2~~7~~8 Cargo tank	(1) Confirmation that the cargo tank openings, including gaskets, covers, coamings and screens are in good condition. (2) Confirmation that the cargo tank pressure/vacuum valves and devices to prevent the passage of flame are in good condition. (3) Confirmation that the cargo tank venting, cargo tank purging and gas-freeing and other ventilation systems are in good condition. (4) Confirmation that the earthing between hull structures and the cargo tank is in good condition.
2~~8~~9 Wire gauze to prevent the passage of flame	(1) Confirmation, as far as practicable, that the wire gauze to prevent the passage of flame on vents to all bunker, oily-ballast and oily-slop tanks and void spaces are in good condition.
~~29~~30 Safe access to the bow	(1) Confirmation that the means of safe access to the bow is in good condition.
3~~0~~1 Emergency towing arrangements	(1) Confirmation that emergency towing arrangements for ships of not less than 20,000 tonnes deadweight are in good condition.
Additional Requirement for Bulk Carriers over 10 *years* of age	
3~~1~~2 Piping in the cargo holds	(1) Confirmation that all piping and penetrations in cargo holds, including overboard piping, are in good condition.
Additional Requirement for General Dry Cargo Ships of not less than 500 *gross tonnage* and over 15 *years* of age	
3~~2~~3 Piping in the cargo holds	(1) Confirmation that all piping and penetrations in cargo holds, including overboard piping, are in good condition.
Additional Requirement for Container Carriers	
3~~3~~4 Block-to-block butt joints of strength decks and hatch side coamings (including top plates and attached longitudinal stiffeners)	(1) In the case of container carriers using extremely thick steel plates which comply with **32.13, Part C ~~of the Rules~~**, it is to be confirmed, as far as practicable, that block-to-block butt joints of strength decks and hatch side coamings (including top plates and attached longitudinal stiffeners) are in good condition.

Note:

Examination of suspect areas identified at previous surveys is to be carried out.

Paragraph 3.2.7 has been amended as follows.

3.2.7 Pressure Test

At Annual Surveys for oil tankers and ships carrying dangerous chemicals in bulk, a pressure test is to be carried out on the piping system when deemed necessary by the Surveyor as a consequence of the general examination of item No.2~~6~~7 specified in **Table B3.2**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 June 2023.

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.

Amendment 1-3

Chapter 1 GENERAL

1.1 Surveys

Paragraph 1.1.7 has been amended as follows.

1.1.7 Bulk Carriers*

~~**1** For ships which are applicable to **Chapter 31B, Part C**, a compliance survey for the requirements of **31B.2, 31B.3** and **31B.4, Part C** is to be carried out by the time specified in **Table C31B.1.3, Part C** and, a compliance survey for the requirements of **31B.5** and **31B.6, Part C** is to be carried out by the time specified in **Table C31B.5.1, Part C** in addition to the surveys required in this chapter. Moreover, a compliance survey for the requirements of **31B.7, Part C** is to be carried out. The thickness measurement examination included in the compliance survey for **31B.3** and **31B.5, Part C**, is to be carried out as deemed appropriate by the Society. In this case, the gauging procedure and submitted report are to comply with the requirements of **5.2.6-1** in addition to the procedures specified separately.~~

~~**2**~~**1** For ships which are applicable to **Chapter 31B** (Requirements related to **Chapter 31B** specified in this Chapter are those which are applied to ships which have been contracted for construction prior to 1 July 2023), continuing compliance with ~~**31B.3** and **31B.5,**~~ **An3.** and **An.5, Annex 1.2, Part 2-2, Part C** is to be verified at Special Surveys and Intermediate Surveys (for ships over 10 years of age) ~~after the compliance survey specified in **-1**~~. For this purpose, the thickness measurements as deemed appropriate by the Society are to be carried out for the vertical corrugated watertight bulkhead abaft the foremost hold, in addition to those according to **Table B5.15**.

~~**3**~~**2** For ships which are required to carry out the annual thickness measurement for the vertical corrugated watertight bulkhead abaft the foremost hold as a result of the survey specified in **-1** ~~or **-2**~~, the measurement is to be carried out at Annual Surveys in addition to those according to **Table B3.6**.

~~**4**~~**3** For ships which are applicable to **31B.2.1-2, Part C** ~~as a result of the survey specified in **-1**~~, the following surveys are to be carried out at periodical surveys in addition to the surveys required in this chapter.

(1) At annual surveys, in addition to the requirements stipulated in **Chapter 3**, the following items are to be carried out for the foremost hold.
   (a) For ships over 5 *years* and up to 15 *years* of age
      i) An overall survey of the cargo hold
      ii) A close-up survey of transverse bulkheads and a minimum of 25% of hold frames (including their upper and lower brackets and adjacent shell plating)
      Where considered necessary by the Surveyor as a result of the survey, the survey is to be extended to include a close-up survey of all of the hold frames (including their upper and lower brackets and adjacent shell plating).
      iii) A survey of suspect areas identified at previous surveys
   (b) For ships over 15 *years* of age
      i) An overall survey of the cargo hold
      ii) A close-up survey of transverse bulkheads and all hold frames (including their upper and lower brackets and adjacent shell plating)
      iii) A survey of suspect areas identified at previous surveys
   (c) The thickness measurement is to be carried out to the minimum extent specified in **(a)ii)**

and **iii)** or **(b)ii)** and **iii)** above as applicable. This thickness measurement may be dispensed with provided the Surveyor is satisfied by the close-up survey, there is no structural diminution and the protective coating, where applied, remains effective. However, where substantial corrosion is found as a result of such thickness measurements, additional thickness measurements are to be taken in accordance with **Tables B5.16** through **B5.20** for the structural members in which such corrosion is found.

(2) Function tests of the bilge well high level alarms and hold water ingress alarms as stated in **(2)** and **(4)** of **C31B.2.1-2 of the Guidance for the Survey and Construction of Steel Ships** are to be carried out in addition to those required at periodical surveys as stated in **3.2.3**, **4.2.3** and **5.2.3**.

1.3 Definitions

1.3.1 Terms*

Sub-paragraph (6) has been amended as follows.

The terms which appear in this part are defined as follows. Terms not defined here are as defined in other parts of the Rules.

((1) to (5) are omitted.)

(6) "Substantial corrosion" is an extent of corrosion such that assessment of corrosion pattern indicates wastage in excess of 75% of allowable margins, but within acceptable limits. Notwithstanding the above, for the following (a) to (c), "substantial corrosion" is an extent of corrosion such that the assessment of the corrosion pattern indicates a gauged (or measured) thickness which is within the range of 0.5*mm* to the renewal thickness stipulated in the relevant provisions. "Renewal thickness" refers to the minimum allowable thickness below which the renewal of structural members is to be carried out.

(a) For ships complying with the provisions of **Part CSR-B, Part CSR-T** or **Part CSR-B&T**.

(b) For hatch covers and hatch coamings for cargo holds of the ships stipulated otherwise by the Society.

(c) For transverse watertight bulkheads in cargo hold complying with the provision of ~~**Chapter 31A, Part C**~~ **Annex 1.1, Part 2-2, Part C** or **Chapter 31B, Part C.**

((7) to (28) are omitted.)

1.4 Preparation for Survey and Other Items

1.4.5 Procedure for Tests, Wear and Tear, etc.*

Sub-paragraph -3 has been amended as follows.

3 Repairs for Wear and Tear

Where the thicknesses of materials of hull structure, scantlings of equipment, etc. become less than the stipulated wear and tear limits, these are to be replaced by new ones having either the original scantlings at the time of construction or the scantlings deemed appropriate by the Society. ~~As regards to structural members with scantlings that have been reduced by virtue of an approved system of corrosion control under **1.1.21, Part C**, the reduction is to be included as part of the corrosion when taking measurements.~~ Where, however, the original scantlings were larger than the required ones, or where deemed appropriate by the Surveyor, allowances may be made in regards to

location, extent, kind, etc. of the wear and tear.

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

Paragraph 2.1.2 has been amended as follows.

2.1.2 Submission of Plans and Documents for Approval*

1 When it is intended to build a ship for classification by the Society, the following plans and documents are to be submitted for the approval by the Society before the work is commenced. The plans and documents may be submitted for examination by the Society prior to making an application for the classification of the ship as stipulated otherwise by the Society.

(1) Hull

(a) General arrangement

(b) Midship section (cross sections of the hold, machinery space, and areas containing wing tanks (if fitted); intended classification characters and notations, designed maximum load draught, and for ships complying with the requirements in ~~**1.1.12-1** or **-2 of**~~ **3.2.2.2** and **3.2.2.3, Part 1, Part C**, design temperature are to be indicated in this plan.)

((c) to (j) are omitted.)

(k) Shell expansion (Dimensions and arrangements of freeing ports and draught at ballast condition (for ships which comply with the requirements in ~~**1.1.12-1 of**~~ **3.2.2.2, Part 1, Part C**) are to be indicated in this plan.

((l) to (v) are omitted.)

(w) Plans showing arrangement for means of access or ship structure access manuals as applicable, as defined in ~~**Chapter 35,**~~ **14.16, Part 1, Part C** and **Chapter 26, Part CS**

((x) and (y) are omitted.)

(z) Plans showing arrangement of the ship's identification number specified in ~~**1.1.24,**~~ **14.2, Part 1, Part C**

(aa) Towing and mooring fittings arrangement plan specified in ~~**27.2,**~~ **14.4, Part 1, Part C** or **23.2, Part CS**

(ab) Arrangement of the means of embarkation and disembarkation specified in ~~**23.8,**~~ **14.14, Part 1, Part C** or **21.8, Part CS**

(ac) (Omitted)

((2) to (7) are omitted.)

2 (Omitted)

3 (Omitted)

4 For ships that are required to have a loading manual in accordance with the requirements of ~~**34.1.1,**~~ **3.8.1.1, Part 1, Part C**, and **25.1.1, Part CS**, the loading manual is to include conditions for loading and other necessary information and is to be submitted for approval by the Society, in addition to the plans and documents listed in **-1**.

5 For ships that are required to have a loading computer in accordance with the requirements of ~~**34.1.1,**~~ **3.8.1.1, Part 1, Part C**, lines (provided with offset table), light load hydrostatic curves, tank capacity plan (finished plan), and the results of inclining tests are to be submitted to the Society, in addition to the plans and documents specified in **-1**. However, part or whole of these plans and documents may be omitted in cases where the requirements are separately provided by the Society.

(-6 to -8 are omitted.)

9 For ships that are required to have a damage control plan in accordance with the requirement of ~~**Chapter 33**~~**2.3.4, Part 1, Part C**, the damage control plan is to be submitted for approval by the Society, in addition to the plans and documents as listed in **-1**.

10 For ships that are required to have emergency towing arrangements in accordance with the requirements of ~~**27.3**~~**14.5.2, Part 1, Part C**, drawings indicating locations of emergency towing arrangements and construction of the part of the hull where the emergency towing arrangements are installed are to be submitted for approval by the Society, in addition to the plans and documents listed in **-1**.

11 For ships that are required to have an operating and maintenance manual for the door and inner door in accordance with the requirements of ~~**23.3.10-1**~~**14.10.1.10-1** and ~~**23.4.9-1**~~**14.10.2.9-1, Part 1, Part C** or **21.3.10-1** and **21.4.9-1, Part CS**, the operating and maintenance manual is to be submitted for approval by the Society.

12 For ships required to have a Coating Technical File for dedicated seawater ballast tanks, etc. in accordance with the requirements of ~~**25.2.2**~~**3.3.5.3, Part 1, Part C**, **22.4.2, Part CS**, **1.2.2 Section 5 Chapter 3, Part CSR-B** or **2.1.1.2 Section 6, Part CSR-T**, this file is to be submitted for review by the Society.

13 For ships required to have a Coating Technical File and/or a Corrosion Resistant Steel Technical File for cargo oil tanks in accordance with the requirements of ~~**25.2.3**~~**3.3.5.4, Part 1, Part C** or **22.4.3, Part CS**, these files are to be submitted for review by the Society.

14 For ships whose surveys for construction monitoring are carried out in accordance with the requirements in **1.1.12**, drawings indicating critical structural areas are to be submitted to the Society for approval prior to the commencement of the survey.

2.1.3 Submission of Other Plans and Documents

Sub-paragraphs -1(13) and (14) have been amended as follows.

1 When it is intended to build a ship to the classification with the Society the following plans and documents are to be submitted, in addition to those required in **2.1.2**:

((1) to (12) are omitted.)

(13) Strength calculation sheets (noting design loads) associated with various supporting hull structures of towing and mooring fittings, including towing and mooring fittings which are not selected from standards approved by the society, for ships complying with ~~**27.2,**~~ **14.4, part 1, Part C** or **23.2, Part CS**

(14) For ships that are required to have emergency towing arrangements in accordance with the requirements of ~~**27.3,**~~ **14.5.2, Part 1, Part C**, an operation manual of the emergency towing arrangements.

((15) and (16) are omitted.)

2.1.4 Presence of Surveyor*

Sub-paragraph -1 has been amended as follows.

1 The presence of the Surveyor is required at the following stages of the work in relation to hull and equipment. To implement surveys of items specified otherwise by the Society, in lieu of traditional ordinary surveys where the Surveyor is in attendance, the Society may approve other survey methods which it considers to be appropriate in the following cases.

((1) to (7) are omitted.)

(8) When performance tests are carried out on closing appliances of openings, remote control devices, steering gears, anchoring and mooring equipment, emergency towing arrangements,

means of embarkation and disembarkation (specified in ~~**23.8,**~~ **14.14, Part 1, Part C** or **21.8, Part CS**), fire fighting systems, piping, water level detection and alarm systems (specified in **13.8.5** and **13.8.6, Part D**), dewatering arrangements (specified in **13.5.10, Part D**), etc. Performance tests for one detector of each group (for on-board function tests of fixed fire detection and alarm systems installed in machinery spaces specified in **7.4.1-1**, **Part R of the Rules**, refer to the test procedures shown in **Annex 2.1.4**).

(9) (Omitted)

(10) When a loading computer is installed on board ships that require it in accordance with the requirements of ~~**34.1.1,**~~ **3.8.1.1, Part 1, Part C**.

((11) to (13) are omitted.)

(14) When emergency towing arrangements are installed on board ships that require them in accordance with the requirements of ~~**27.3,**~~ **14.5.2, Part 1, Part C**.

((15) to (17) are omitted.)

Paragraph 2.1.6 has been amended as follows.

2.1.6 Documents to be Maintained On Board*

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.

(1) Documents approved by the Society or their copies
  (a) Operating and maintenance manuals for the door and inner door (~~**23.3.10**~~**14.10.1.10** and ~~**23.4.9,**~~ **14.10.2.9, Part 1, Part C** or **21.3.10** and **21.4.9, Part CS**)
  (b) Damage control plans (~~**33.3.1,**~~ **2.3.4.3, Part 1, Part C**)
  (c) Loading manuals (~~**Chapter 34,**~~ **3.8, Part 1, Part C** or **Chapter 25, Part CS**)
  (d) Ship structure access manuals (~~**35.2.6,**~~ **14.16.3.6, Part 1, Part C** or **26.2.6, Part CS**)
  ((e) to (q) are omitted.)
  (r) Coating Technical File for dedicated seawater ballast tanks, etc. (~~**25.2.2**~~**3.3.5.3, Part 1, Part C**, **22.4.2**, **Part CS**, **1.2.2 Section 5 Chapter 3**, **Part CSR-B** and **2.1.1.2 Section 6, Part CSR-T**)
  (s) Coating Technical File and/or Corrosion Resistant Steel Technical File for cargo oil tanks (~~**25.2.3,**~~ **3.3.5.4, Part 1, Part C** and **22.4.3, Part CS**)
  (t) Plans and documents for in-water surveys (**6.1.2-3**)

(2) Other documents
  (a) Towing and mooring fitting arrangement plans (~~**27.2.9,**~~ **14.4.1.4, Part 1, Part C** or **23.2.9, Part CS**)
  (b) Operation manuals for the emergency towing arrangement (~~**27.3,**~~ **14.5.2, Part 1, Part C**)
  (c) Booklets for damage control and Damage Stability Information (~~**33.3.2, Part C** and **33.3.3, Part C**~~ **2.3.4.4** and **2.3.4.5, Part 1, Part C**)
  (d) Operation manuals for the loading computer (~~**34.1.3-3,**~~**3.8.3.1-3, Part 1, Part C**)
  (e) Plans for means of access (~~**35.1.5,**~~**14.16.2.5, Part 1, Part C** or **26.1.5, Part CS**)
  ((f) to (p) are omitted.)
  (q) Emergency Towing Procedures (~~**27.4,**~~ **14.5.3, Part 1, Part C** or **23.3, Part CS**)
  ((r) to (x) are omitted.)

(3) Finished plans specified in **2.1.7**

2 In addition to the requirements in **-1** above, for ships engaged on international voyages, the Surveyor confirms that the Ship Construction File contains the necessary documents from the following drawings, plans, manuals and documents, and that the Construction File is on board the ship. Duplicate documents as in **-1** are not required.

(1) Finished plans of hull structural drawings specified in **2.1.7**

(2) The following manuals and documents

(a) Operating and maintenance manuals for the door and inner door (~~**23.3.10**~~**14.10.1.10** and ~~**23.4.9,**~~ **14.10.2.9, Part 1, Part C** or **21.3.10** and **21.4.9, Part CS**)
(b) Damage control plans (~~**23.3.1,**~~ **2.3.4.3, Part 1, Part C**)
(c) Loading manuals (~~**Chapter 34,**~~ **3.8, Part 1, Part C** or **Chapter 25, Part CS**)
(d) Stability information booklets (**1.2.1, Part U**, **2.2.3, Part N** and **2.2.2, Part S**)

(3) Ship structure access manuals (~~**35.2.6,**~~**14.16.3.6, Part 1, Part C** or **26.2.6, Part CS**)
(4) Copies of certificates of forgings and castings welded into the hull structures
(5) Plans showing locations, sizes and details of equipment forming part of the watertight and weather-tight integrity of the ship, including piping (**2.1.2-1(1)(q)**)
(6) Corrosion prevention scheme (**2.1.3-1(3)**)
(7) Plans and documents for in-water surveys (**6.1.2-3**)
(8) Docking plan including locations and other necessary information of all penetrations specified in item 3 in **Table B6.1**
(9) Coating Technical File for dedicated seawater ballast tanks, etc. (~~**25.2.2,**~~ **3.3.5.3, Part 1, Part C** and **22.4.2, Part CS, 1.2.2 Section 5 Chapter 3, Part CSR-B** and **2.1.1.2 Section 6, Part CSR-T**)
(10) Coating Technical File and/or Corrosion Resistant Steel Technical File for cargo oil tanks (~~**25.2.3,**~~**3.3.5.4, Part 1, Part C** and **22.4.3, Part CS**)
(11) Plans and documents for Anti-Fouling Systems (**2.2.2, Rules for Anti-Fouling Systems on Ships**)
(12) Watertight cable penetration register
(13) Test plans, test records, measurement records, etc.

(-3 to -8 are omitted.)

Paragraph 2.1.8 has been amended as follows.

2.1.8 Verification of Coating Application*

1 The following items will be carried out by the Society prior to reviewing the Coating Technical File for dedicated seawater ballast tanks, etc. for the coatings of internal spaces subject to ~~**25.2.2**~~**3.3.5.3, Part 1, Part C**, **22.4.2**, **Part CS**, **1.2.2 Section 5 Chapter 3**, **Part CSR-B** or **2.1.1.2 Section 6, Part CSR-T**:

((1) to (5) are omitted.)

2 The following items will be carried out by the Society prior to reviewing the Coating Technical File for cargo oil tanks for the coatings of internal spaces subject to ~~**25.2.3,**~~ **3.3.5.4, Part 1, Part C** or **22.4.3, Part CS**:

((1) to (5) are omitted.)

2.2 Classification Survey of Ships Not Built under Survey

Paragraph 2.2.1 has been amended as follows.

2.2.1 General*

1 (Omitted)
2 (Omitted)
3 For ships that are required to have a loading manual in accordance with the requirements of ~~**34.1.1** and **34.3.1, Part C**~~ **3.8.1.1, Part 1, Part C**, and **25.1.1, Part CS**, the loading manual (including the conditions for loading and other necessary information) is to be submitted for approval by the Society.
4 (Omitted)
5 (Omitted)

6 For ships that are required to have a damage control plan in accordance with the requirements of ~~**Chapter 33,**~~ **2.3.4, Part 1, Part C**, the damage control plan is to be submitted for approval by the Society.

7 For ships that are required to have emergency towing arrangements in accordance with the requirements of ~~**27.3,**~~ **14.5.2, Part 1, Part C**, drawings indicating locations of emergency towing arrangements and construction of the part of the hull where the emergency towing arrangements are installed are to be submitted for approval by the Society.

8 For ships that are required to have an operating and maintenance manual for the door and inner door in accordance with the requirements of ~~**23.3.10-1**~~ **14.10.1.10-1** and ~~**23.4.9-1,**~~**14.10.2.9-1, Part 1, Part C** or **21.3.10-1** and **21.4.9-1, Part CS**, the operating and maintenance manual is to be submitted for approval by the Society.

Chapter 3 ANNUAL SURVEYS

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

Table B3.1 has been amended as follows.

Table B3.1 Examination of Plans and Documents

Items	Examination
1 Loading Manual	(1) For ships required to have the manual on board in accordance with the requirements of ~~**34.1.1 and 34.3.1,**~~ **3.8.1.1, Part 1, Part C**, and **25.1.1, Part CS**, confirmation that the manual is kept on board is to be made.
2 Stability Information Booklet	(1) Confirmation as to whether the booklet is kept on board is to be made.
3 Damage Control Plan, Booklet and Damage Stability Information	(1) For ships required to have the damage control plan on board in accordance with the requirement in ~~**Chapter 33,**~~ **2.3.4, Part 1, Part C**, confirmation that the approved plan is exhibited and the booklet containing the information shown in the plan and the damage stability information are kept on board is to be made.
4 Fire Control Plan	(1) Confirmation that the fire control plan is exhibited and properly stored is to be made.
5 Operating and Maintenance Manual for the door and inner door and notices indicating procedures for closing and securing	(1) For ships required to have the manual and notices on board in accordance with the requirements in ~~**Chapter 23,**~~ **14.10, Part 1, Part C**, and **Chapter 21, Part CS**; (2) Confirmation that the manual is kept on board is to be made. (3) Confirmation that the board is exhibited is to be made.
6 Instruction Manuals for the Inert Gas System	(1) For ships required to have the manual on board in accordance with the requirements of **4.5.5, Part R**, confirmation that the manual is kept on board is to be made.
7 Towing and Mooring Fitting Arrangement Plan	(1) Confirmation that the Towing and Mooring Fitting Arrangement Plan specified in ~~**27.2,**~~ **14.4, Part 1, Part C** or **23.2, Part CS** is kept on board is to be made.
8 Ship Structure Access Manual	(1) For ships required to have the manual on board in accordance with the requirements of ~~**35.2.6,**~~ **14.16.3.6, Part 1, Part C** or **26.2.6, Part CS**, confirmation that the manual is kept on board and updated as necessary is to be made.
9 Documents related to the surveys for bulk carriers, oil tankers and ships carrying dangerous chemicals in bulk with integral tanks	(1) Confirmation that the documents are kept on board is to be made.
10 Coating Technical File and/or Corrosion Resistant Steel Technical File	(1) For ships required to have a Coating Technical File for dedicated seawater ballast tanks, etc. on board in accordance with the requirements of ~~**25.2.2,**~~ **3.3.5.3, Part 1, Part C**, **22.4.2, Part CS**, **1.2.2 Section 5 Chapter 3, Part CSR-B** or **2.1.1.2 Section 6, Part CSR-T**, confirmation that the file is kept on board and that maintenance and repair work are properly recorded and kept on the file is to be made. (2) For ships required to have a Coating Technical File and/or a Corrosion Resistant Steel Technical File for cargo oil tanks on board in accordance with the requirements of ~~**25.2.3,**~~ **3.3.5.4, Part 1, Part C** or **22.4.3, Part CS**, confirmation that the files are kept on board and that maintenance and repair work are properly recorded and kept on the files is to be made.
(Omitted)	

3.2.2 General Examination*

At Annual Surveys, examinations of hull, equipment, fire-extinction and fittings listed in **Table B3.2** are to be carried out.

Table B3.2 has been amended as follows.

Table B3.2 General Examination

Items	Examination
(Omitted)	
17 Towing and mooring fittings	(1) Confirmation that the marks of Safe Towing Load (*TOW*) on towing fittings and Safe Working Load (*SWL*) on mooring fittings as specified in ~~**27.2.3**~~ **14.4.2.4**or ~~**27.2.6,**~~ **14.4.3.5, Part 1, Part C** or **23.2.3 or 23.2.6, Part CS** are clearly visible and these fittings are in good condition.
18 Loading computer	(1) Confirmation that the computer of ships required to have one in accordance with the provisions of ~~**34.1.1**~~ **3.8.1.1, Part 1, 3.2.2.1, Part 2-2,** and ~~**34.3.2, Part C**~~ **3.2.2.1, Part 2-3, Part C** is maintained in good order.
(Omitted)	
Additional Requirement for Container Carriers	
33 Block-to-block butt joints of strength decks and hatch side coamings (including top plates and attached longitudinal stiffeners)	(1) In the case of container carriers using extremely thick steel plates which comply with ~~**32.13, Part C of the Rules**~~ **10.5, Part 2-1, Part C**, it is to be confirmed, as far as practicable, that block-to-block butt joints of strength decks and hatch side coamings (including top plates and attached longitudinal stiffeners) are in good condition.

Note:

Examination of suspect areas identified at previous surveys is to be carried out.

Chapter 5 SPECIAL SURVEYS

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

5.2.2 General Examination*

Sub-paragraph -5 has been amended as follows.

5 At Special Surveys for container carriers using extremely thick steel plates which comply with ~~**32.13, Part C of the Rules**~~**10.5, Part 2-1, Part C**, in addition to **-1**, the block-to-block butt joints of strength decks, hatch side coamings (including top plates and attached longitudinal stiffeners), sheer strakes, and the topmost strakes of inner hulls and bulkheads (only one strake adjacent to strength decks) are to be examined from both sides as far as practicable. Furthermore, additional non-destructive inspections may be required based upon the results of such examination when deemed necessary by the attending surveyor.

5.2.3 Performance Test*

Sub-paragraph -1 has been amended as follows.

1 At Special Surveys, performance tests specified in **4.2.3** are to be carried out. In addition to such performance tests, it is to be confirmed that the loading instrument required in ~~**34.1.1** and **34.3.2, Part C**~~ **3.8.1.1, Part 1, 3.2.2.1, Part 2-2** and **3.2.2.1, Part 2.3, Part C** works in order. Moreover, the performance tests for mooring and anchoring arrangements specified in item 3 of **Table B4.1** may not be omitted.

Annex 2.1.5 TESTING PROCEDURES OF WATERTIGHT COMPARTMENTS

Table An 1.4-1 has been amended as follows.

Table An 1.4-1 Test Requirements for Tanks and Boundaries

	Tank or boundary to be tested	Test type	Test head or pressure	Remarks
1	Double bottom tanks[*4]	Leak and structural[*1]	The greater of - top of the overflow, - to 2.4 *m* above top of tank[*2], or - to bulkhead deck	
2	Double bottom voids[*5]	Leak	See **An 1.4.4-4** through **-6**, as applicable	including pump room double bottom and bunker tank protection double hull required by **Part 3 of the Rules for Marine Pollution Prevention Systems**
(Omitted)				
12	Watertight doors below freeboard or bulkhead deck	Leak[*6,7]	See **An 1.4.4-3** through **-6**, as applicable	
(Omitted)				

Notes:

(1 to 3 are omitted.)

4 Including tanks arranged in accordance with the provisions of ~~**6.1.1-3, Part C of the Rules**~~ **2.4.1.1-3, Part 1, Part C**.

5 Including duct keels and dry compartments arranged in accordance with the provisions of ~~**6.1.1-3, Part C of the Rules**~~ **2.4.1.1-3, Part 1, Part C**, and/or oil fuel tank protection and pump room bottom protection arranged in accordance with the provisions of **1.2.3** and **3.2.5, Part 3 of the Rules for Marine Pollution Prevention Systems** respectively.

6 Where water tightness of a watertight door has not been confirmed by prototype test, testing by filling watertight spaces with water is to be carried out. See ~~**13.3.3-1, Part C of the Rules.**~~ **2.2.2.3-1, Part 1, Part C**

(7 to 10 are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2023.

2. Notwithstanding the amendments to the Rules, the current requirements apply to the following ships:

(1) ships for which the date of contract for construction is before the effective date; or

(2) sister ships of ships subject to the current requirements for which the date of contract for construction is before 1 January 2025.

Amendment 1-4

Chapter 3 ANNUAL SURVEYS

3.3 Annual Surveys for Machinery

3.3.1 General Examinations*

Sub-paragraph -1 has been amended as follows.

1 At Annual Surveys for Machinery, a general examination of all the machinery in the engine room as well as the following **(1)** to **(4)** inspections are to be carried out:

(1) It is to be ascertained that the main propulsion machinery, power transmission machinery, shafting systems, prime movers other than main propulsion machinery, boilers, thermal oil heaters, incinerators, pressure vessels, auxiliaries, piping systems, control systems, electrical installations and switchboards are placed in good order.

(2) It is to be ascertained that the engine room, boiler spaces and means of escape are placed in good order with respect to dangers of fire and explosion.

(3) For ships affixed with the notation "*PSCM*" or "*PSCM-1A*", the records of the parameters monitored are to be reviewed, in addition to a general examination, so as to ascertain that the relevant installations are well maintained.

(4) For ships other than those referred to in **(3)** above with oil lubricated or freshwater lubricated bearings, it is to be checked as to whether lubricating oil analysis or fresh water sample tests are regularly carried out except for the cases specified in **3.3.4-2(3)**. In cases where lubricating oil analysis or water sample tests are carried out, it is to be checked as to whether the reference standards deemed appropriate by the Society are complied with based upon the lubricating oil analysis or fresh water sample test reports, in addition to a general examination.

Chapter 8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

Title of Section 8.1 has been amended as follows.

8.1 ~~Definitions~~General

Paragraph 8.1.1 has been amended as follows.

8.1.1 Terms

The terms which appear in this chapter are defined as follows.

((1) to (22) are omitted.)

(23) "*Propeller Shaft Condition Monitoring System*" (abbreviated as *PSCM*) is notation affixed to the classification characters of ships provided with shaft Kind 1*B* or shaft Kind 1*C* and whose preventive maintenance systems are approved in accordance with the requirements of **8.1.2-1**.

(24) "*Propeller Shaft Condition Monitoring System of Shaft Kind 1A*" (abbreviated as *PSCM-1A*) is notation affixed to the classification characters of ships provided with shaft Kind 1*A* and whose preventive maintenance systems are approved in accordance with the requirements of **8.1.2-2**.

(2~~4~~5) "Alternative means" means shafting arrangements such as an approved condition monitoring scheme or other reliable approved means for assessing and monitoring the condition of the shafts, sealing devices and the stern tube lubricant system capable to assure the condition of the propeller shaft assembly with an equivalent level of safety as obtained by survey methods specified in this part.

Paragraph 8.1.2 has been amended as follows.

8.1.2 Preventive Maintenance System of Shafts

1 The notation *PSCM* is affixed to the classification characters of ships equipped with following **(1)** to **(3)** and whose preventive maintenance system are approved in accordance with the procedures specified in **Table B8.1-1**.

(1) Oil lubricated stern tube bearing

(2) Stern tube sealing devices can be repaired or replaced without drawing out the shafts

(3) One or more temperature sensors embedded into the metal at the aft end bottoms of stern tube

2 The notation *PSCM-1A* is affixed to the classification characters of ships equipped with the following **(1)** to **(10)** and whose preventive maintenance systems are approved in accordance with the procedures specified in **Table B8.1-2**.

(1) Water lubricated stern tube bearings

(2) Inspection methods by means of inspection hole and borescope camera that enable a detailed checking of the surface of the shaft (including the sleeve) and bearings while the shaft is fixed without withdrawal of the shafts, or other inspection methods deemed appropriate by the Society.

(3) Stern tube sealing devices can be repaired or replaced without drawing out the shafts

(4) At least two independent lubricating water pumps are to be provided that are capable of continuously supplying lubricating water to the stern tube while the ship is anchoring or mooring. In addition, pump operation is to be capable of automatically switching from one pump to another when either of the following **(a)** or **(b)** is applicable.

(a) A pump in operation stops.

(b) The differential pressure between the suction and discharge or flow rate of lubricating water drops below a preset value.

(5) Filtration systems capable of continuously filtering lubricating water that conform to requirements specified by bearing manufacturers.
(6) Interlock devices that prevent shafts from starting to rotate when the flow rate of lubricating water is not sufficiently established.
(7) Remote monitoring devices for weardown of shafts deemed appropriate by the Society that are capable of the onboard monitoring of such weardown and have redundancy.
(8) Monitoring devices for lubricating water supply systems that activate the alarms listed in **Table B8.1-3** at main control stations (as defined in **18.1.2(3)** of **Part D**). However, when there is no main control station, alarms may be activated at locations easily accessible to the crew.
(9) Grounding devices and grounding condition monitoring devices for shafts
(10) Inspection procedures approved by the Society which include following items:
  (a) Procedures for checking the surfaces of shafts (including sleeves) and bearings which include following **i)** to **iv)**.
    i) Areas and extent to be checked
    ii) Methods and criteria for evaluating the condition of shafts
    iii) Arrangement of inspection holes
    iv) Specifications of borescope camera
  (b) Recommended test procedures to verify the function of the equipment specified in **(4)** to **(9)** above.

Table B8.1 has been renumbered to Table B8.1-1, and the Title has been amended as follows.

Table B8.1-1 Approval Procedure of Preventive Maintenance System for Oil Lubricated Propeller Shafts (*PSCM*)

(Table are omitted.)

Table B8.1-2 has been added as follows.

Table B8.1-2 Approval Procedure of Preventive Maintenance System for Water Lubricated Propeller Shafts (*PSCM-1A*)

Item	Procedures
1 General	(1) These procedures apply to ships intended for the preventative maintenance of propeller shafts. This system permits shipowners to maintain shafts using preventive measures such as the monitoring of the weardown of shafts, water lubricating systems, grounding conditions between shafts and the hull as well as additionally diagnosing the lubricating conditions of shafts based on monitoring results.
2 Application	(1) The executive management (hereinafter referred to as "management") responsible for adopting the preventive maintenance system according to the procedures is to submit to the Society three copies of a maintenance manual specifying at least the following **(a)** to **(g)**. (a) Management policy for implementing the preventive maintenance system (b) Procedures for monitoring parameters such as the following and recording necessary data i) Weardown of shafts by remote monitoring devices ii) At least the flow rates and the differential pressures specified in **Table B8.1-3** related to the water lubricating systems. iii) Grounding conditions between shafts and the hull, including the monitoring of values for voltage, current, or resistance. (c) Procedures and personnel responsible for controlling the items specified in **(b)** above (d) Procedures and personnel responsible for review and evaluating the monitored values specified in **(b)** above. In addition, the criteria for each parameter mentioned in **4(3)** is to be specified. (e) Procedures and personnel responsible for handling any abnormalities found (including procedures for reporting to the Society) in the monitored values specified in **(b)** above (f) Procedures and personnel responsible for ensuring that proper maintenance is carried out according to the maintenance manual (g) Plans and documents for equipment or systems related to water lubrication. (2) The Society returns two copies of the documents to the applicant after review and approval. 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. (3) The application is to be submitted within 6 *months* 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.
3 Approval and Notation	(1) 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). The Society assigns approved ships with the notation (*PSCM-1A*) as classification characters.

Table B8.1-2 Approval Procedure of Preventive Maintenance System for Water Lubricated Propeller Shafts (*PSCM-1A*) (Continued)

4 Approval Conditions	(1) Management system (a) 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 familiarise the crew concerned with the procedures. (b) Management is to verify that parameters are all within their limits and to take suitable measures as necessary. In addition, management is to report to the Society immediately where any abnormality is found. (c) Management is to verify that suitable maintenance is carried out according to the manual. (d) The items monitored or reviewed according to the manual are to be recorded. (2) Maintenance procedures (a) Weardown measurement is to be carried out regularly at the intervals of 3 *months* or less and the procedures are to be in accordance with the following. i) In principle, the measurement is to be carried out with the condition that shaft is fixed and the load of the propeller fully on the stern tube bearing at the draft specified by the bearing manufacturer. ii) At least three measurements are to be carried out and the average value is to be treated as the measured value. iii) The estimated remaining operating time to reach the maximum allowable weardown specified by the bearing manufacturer is to be calculated from the measured value. iv) The measured values and estimated values in **ii)** and **iii)** above are to be properly recorded and controlled. (b) In principle, lubricating water pumps are to be operated even when the vessel is anchoring or mooring so as to supply the lubrication water to the stern tube at all times. However, in case where the supply of lubricating water is stopped due to unavoidable reasons, the duration of such times is to be recorded. (c) At least the flow rates and the differential pressures specified in **Table B8.1-3** related to the lubricating water supply system are to be continuously monitored, periodically measured, recorded and controlled (at least monthly). (d) The grounding condition between shafts and hull is to be continuously monitored, periodically measured, recorded and controlled (at least monthly). (3) Criteria for parameters Management is to determine the criteria for each parameter for the ship based on reference standards specified by the bearing manufacturer of the maximum allowable weardown, the flow rates and the differential pressures specified in **Table B8.1-3**, and the grounding condition between shafts and hull in consideration of management's experience and knowledge.
5 After Approval	(1) Monitoring, measuring and recording are to be performed in accordance with the preventive maintenance system approved by the Society. (2) Records of measurements are to be kept on board so they can be presented to the surveyor at the time of inspection. (3) Arrangement is to be made to replace worn parts such as sleeves and stern tube bearings at an appropriate time before the measured weardown reaches the criteria for the parameters (maximum allowable weardown). The history of these replacements is to be recorded and kept on board so they can be presented to the surveyor at the time of inspection. (4) Where any abnormality or improper maintenance is found through examination, management is required to apply for an Ordinary Survey of the shaft.
6 Cancellation of Approval	(1) Where one of the following **(a)** to **(c)** is applicable, the Society may cancel the ship's approval to adopt the preventive maintenance system for propeller shafts. In such cases, the Society is to notify the ship's management of the cancellation, and the ship is to undergo an Ordinary Survey immediately in accordance with **Table B8.2**. (a) Where any improper conduct is found regarding entries in the records. (b) Where it is regarded by the Society that proper maintenance is not carried out according to the approved manual. (c) 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.

Table B8.1-3 has been added as follows.

Table B8.1-3 Lubricating Water Supply System Alarms

Item to be monitored	Alarm type
Flow rate (lubricating water)	Low
Differential pressure (filtration systems) (1)	High
Abnormality (lubricating water pumps)	Abnormal

Note

(1) The items to be monitored for non-filter methods are those deemed appropriate by the Society.

8.2 Surveys of Water Lubricated Shafts

Paragraph 8.2.1 has been amended as follows.

8.2.1 Surveys of Shafts Kind 1*A*

1 Surveys ~~for~~of shafts Kind 1*A* are to be the Ordinary Surveys specified in **Table B8.2** and are to be carried out within 5 *years* from the date of completion (survey due date) of the Classification Survey or the previous Ordinary Survey.

2 In addition to **-1** above, surveys ~~for~~of shafts Kind 1*A* which are used corrosion resistant materials specified in **6.2.7-1(3), Part D** are to be the Partial Surveys specified in **Table B8.2** and are to be carried out within 36 *months* from the date of completion (survey due date) of the Classification Survey or the previous Ordinary Survey specified in **-1** above. In cases where the results of the Partial Survey are not satisfactory, the Ordinary Survey specified in **Table B8.2** is to be carried out.

3 For the surveys referred to **-1** and **-2** above completed within 3 *months* prior to the survey due date, the next period is to start from the survey due date.

4 The survey due date may be extended in cases where a survey is carried out in accordance with following **(1)** to **(4)** and the shafts condition is confirmed to be satisfactory. The interval of the Ordinary Survey specified in **Table B8.2** is not to exceed 6 *years*.

(1) The survey due date may be extended for up to 1 *year* in cases where the 1Year Extension Survey specified in **Table B8.2** is carried out. No further extension survey may be carried out.

(2) The survey due date may be extended for up to 3 *months* in cases where the 3Month Extension Survey specified in **Table B8.2** is carried out. No further 3Month Extension Surveys may be carried out. In the event an additional extension is requested, the survey due date, prior to the previous extension, may be extended for up to 1 *year* in cases where the 1Year Extension Survey specified in **Table B8.2** is carried out.

(3) The period of extension counts from the survey due date in cases where the extension survey is carried out within 1 *month* prior to the survey due date.

(4) The period of extension counts from the date on which the extension survey is carried out in cases where the extension survey is carried out more than 1 *month* prior to the survey due date.

8.2.2 Surveys of Shafts Kind 2

1 Surveys of shafts Kind 2 are to be the Ordinary Surveys specified in **Table B8.2** and are to be carried out in accordance the following **(1)** and **(2)** periods (survey due dates).

(1) Concurrently with Special Surveys, ; and

(2) Within 36 *months* from the date of completion of the Classification Survey or the previous Ordinary Survey.

2 For the surveys referred to **-1** above that are completed within 3 *months* prior to the survey due date, the next period is to start from the survey due date.

Paragraph 8.2.3 has been added as follows.

8.2.3 Surveys of Shafts of ships whose classification characters are affixed with the notation *PSCM-1A*

1 Notwithstanding **8.2.1** above, survey of shafts of ships whose classification characters are affixed with the notation *PSCM-1A* are subject to this paragraph.

2 The surveys are to be the Alternative Ordinary Surveys specified in **Table B8.2** and are to be completed within 5 *years* from the date of completion (survey due date) of the Classification Survey or the previous Alternative Ordinary Survey. In cases where the Alternative Ordinary Survey is carried out and the result is not satisfactory, the Ordinary Survey specified in **Table B8.2** is to be carried out.

3 Notwithstanding **-2** above, the interval of the Ordinary Survey specified in **Table B8.2** above is not to exceed 15 *years*. This interval may be extended for up to 3 *months*. No further extension may be granted.

4 For the surveys referred to **-2** or **-3** above completed within 3 *months* prior to the survey due date, the next period is to start from the survey due date.

5 The survey due date may be extended in cases where a survey is carried out in accordance with the following **(1)** to **(4)**. The interval of the Survey specified in **-2** above is not to exceed 6 *years*.

(1) The survey due date may be extended for up to 1 *year* in cases where the 1Year Extension Survey specified in **Table B8.2** is carried out. No further extension survey may be carried out.

(2) The survey due date may be extended for up to 3 *months* in cases where the 3Month Extension Survey specified in **Table B8.2** is carried out. No further 3Month Extension Surveys may be carried out. In the event an additional extension is requested, the survey due date, prior to the previous extension, may be extended for up to 1 *year* in cases where the 1Year Extension Survey is carried out.

(3) The period of extension counts from the survey due date in cases where the extension survey is carried out within 1 *month* prior to the survey due date.

(4) The period of extension counts from the date on which the extension survey is carried out in cases where the extension survey is carried out more than 1 *month* prior to the survey due date.

Table B8.2 has been amended as follows.

Table B8.2 Surveys of Water Lubricated Shafts – Shafts Kind 1*A* ~~and~~, Kind 2 and Shafts of Ships Whose Classification Characters Are Affixed with the Notation *PSCM-1A*

Items	Examinations	Ordinary Survey	Partial Survey	Alternative Ordinary Survey	Extension Survey	
					1Year	3Month
1 Drawing out of the shafts -1 Entirely drawing out	(1) Drawing the propeller shaft and the stern tube shaft and examining the entire shaft (including liners, corrosion protection system and stress reducing features, where provided), inboard seal system and bearings.	○				
-2 Partially drawing out	(1) Drawing the propeller shaft to confirm the contacting parts to stern tube bearing. The propeller shaft may be withdrawn with the condition fitting propeller to propeller shaft.		○			
-3 Alternative drawing out	(1) In accordance with the inspection procedures specified in **8.1.2-2(10)**, shafts (including seals, liners, corrosion protection system and stress reducing features, where provided.) and bearing surfaces are to be inspected after they have been cleaned to the extent feasible and found to be free from defects without drawing the propeller shafts or stern tube shafts. In the case of shafts with split-sleeve structures (wrapped with rubber, synthetic resin, etc.), the joints between dissimilar materials are to be inspected all the way around.			○		
2 Propeller connections -1 Keyed connections	(1) Removing the propeller to expose the forward end of the taper. (2) Performing a non-destructive examination (*NDE*) to all around the shaft in way of the forward portion of the taper section, including the keyway with the method deemed appropriate by a surveyor. (When shafts provided with liners, the *NDE* is to be extended to the after edge of the liner.)	○		○		
-2 Keyless connections	(1) Removing the propeller to expose the forward end of the taper. (2) Performing a non-destructive examination (*NDE*) to all around the shaft in way of the forward portion of the taper section with the method deemed appropriate by a surveyor. For shafts provided with liners, the *NDE* is to be extended to the after edge of the liner. (3) Notwithstanding **(2)** above, with the interval not to exceed 15 *years*, performing a non-destructive examination (*NDE*) to whole co~~rr~~ne parts of shaft including the forward portion of the taper section with the method deemed appropriate by a surveyor.	○		○		
-3 Flanged connections	(1) Whenever the coupling bolts of any type of flange-connected shaft are removed or the flange radius is made accessible in connection with overhaul, repairs or when deemed necessary by a surveyor, performing a non-destructive examination (*NDE*) to the coupling bolts and flange radius with the method deemed appropriate by the surveyor.	○		○		

Table B8.2 Surveys of Water Lubricated Shafts – Shafts Kind 1*A* ~~and~~, Kind 2 and Shafts of Ships Whose Classification Characters Are Affixed with the Notation *PSCM-1A* (Continued)

Items	Examinations	Ordinary Survey	Partial Survey	Alternative Ordinary Survey	Extension Survey	
					1Year	3Month
3 Clearance between bush of the stern tube bearing and propeller shaft	(1) Checking and recording the clearance between bush of the stern tube and propeller shaft. (2) Confirm the clearance does not exceed following value. (a) Shaft diameter no more than 230 *mm*: 6 *mm* (b) Shaft diameter more than 230 *mm* but no more than 305 *mm*: 8 *mm* (c) Shaft diameter more than 305 *mm*: 9.5 *mm*	○	○	○	○	
4 Propeller	(1) Verification that the propeller is free of damages which may cause the propeller to be out of balance. (For extension survey, the information is confirmed by the record etc.) (2) For ordinary surveys, checking propeller fitting condition to shaft. When the propeller shaft with keyless connection is force fitted to the shaft, it is to be ascertained that the pull-up length is within the upper and lower limits given in **7.3.1-1, Part D**.	○	○	○	○	○
5 Sealing device for stern tube	(1) Verification of the satisfactory conditions of inboard seals during the re-installation of the shaft and propeller. (For ordinary surveys, the verification is carried out during the re-installation of the shaft and propeller.)	○	○	○	○	○
6 Shaft and coupling bolts	(1) Examination of shaft and coupling bolts (For extension survey, visual inspection of accessible parts of shaft and coupling bolts.). However, performing a non-destructive examination (*NDE*) to coupling bolts with the method deemed appropriate by a surveyor in cases where the surveyor, based on the results of external examinations, deems such addition examination to be necessary. In addition, anti-corrosion covers are to be removed for shafts Kind 2.	○	○	○	○	○
7 Stern tube bearing	(1) Examination of the stern tube bearings.	○		○*1		
8 Propeller boss surfaces in contact with the propeller shaft taper	(1) Examination of the propeller boss surface.	○		○		
9 Controllable pitch propeller connections (Only applies to shafts with flanged connections)	(1) Open-up examination of the pitch control gear and working parts as well as performing a non-destructive examination (*NDE*) to the propeller blade fixing bolts with the method deemed appropriate by a surveyor.	○		○		
10 Water lubrication lines	(1) Examination of water lubrication lines.	○	○	○	○	○

Table B8.2 Surveys of Water Lubricated Shafts – Shafts Kind 1*A* ~~and~~, Kind 2 and Shafts of Ships Whose Classification Characters Are Affixed with the Notation *PSCM-1A* (Continued)

Items	Examinations	Ordinary Survey	Partial Survey	Alternative Ordinary Survey	Extension Survey	
					1Year	3Month
11 Monitoring devices etc. -1 Remote monitoring device for weardown of shaft	(1) Confirm that the values of the weardown obtained from the remote monitoring device is consistent with the measured clearance between bush of the stern tube bearing and propeller shaft as referred in **3** above. (2) Confirm that the functions of the device operate normally in accordance with the inspection procedures specified in **8.1.2-2(10)**.			○	○	○
-2 Others	(1) Confirm that the functions of each equipment operate normally in accordance with the inspection procedures specified in **8.1.2-2(10)**.			○	○	○
1~~1~~2 Review of records etc.	(1) Review of following **(a)** to **(d)**. (a) Previous clearance recording (b) Service records (c) No report to repairs by grinding or welding of shafts or propellers (d) The information of the shafting arrangement is in good working condition by the chief engineer (2) For shafts subjected to Alternative Ordinary Survey, review documents and records of following **(a)** to **(d)**. (a) Inspection procedures specified in **8.1.2-2(10)** (b) Measurement records of each monitoring parameter specified in **Table B8.1-2** and the estimated remaining operating time to reach the maximum allowable weardown (c) Records of cleaning of the filtration systems of lubrication water (d) Video records of previous borescope camera inspections			○	○	○

Note

*1 : It is acceptable by confirmation of the result of Section **1-3** of the table.

8.3 Surveys of Oil Lubricated Shafts

Paragraph 8.3.2 has been amended as follows.

8.3.2 Surveys of Shafts of ~~the~~ ships whose classification characters are affixed with the notation *PSCM*

1 Notwithstanding **8.3.1** above, survey of shafts of the ships whose classification characters are affixed with the notation *PSCM* are subject to this paragraph.

~~1~~2 The ~~S~~surveys ~~of shafts of ships affixed with the notation *PSCM*~~ are to be the Ordinary Surveys or Partial Surveys specified in **Table B8.3** and are to be completed within 5 *years* from the date of completion (survey due date) of the Classification Survey or the previous Ordinary Survey. In cases where a Partial Survey is carried out and the result is not satisfactory, the Ordinary Survey specified in **Table B8.3** is to be carried out.

~~2~~3 Notwithstanding **~~1~~2** above, for shafts with keyless or flanged connections, the Simplified Partial Survey specified in **Table B8.3** may be carried out instead of an Ordinary Survey or Partial Survey. In cases where the results of the Simplified Partial Survey are not satisfactory, the Ordinary Survey specified in **Table B8.3** is to be carried out.

~~3~~4 Notwithstanding **~~2~~3** above, for shafts with keyless connections, the interval of the Ordinary Survey or Partial Survey specified in **Table B8.3** above is not to exceed 15 *years*. This interval may be extended for up to 3 *months*. No further extension may be granted. In cases where a Partial Survey is carried out and the result is not satisfactory, the Ordinary Survey specified in **Table B8.3** is to be carried out.

~~4~~5 For the surveys referred to **~~1~~2** to **~~3~~4** above completed within 3 *months* prior to the survey due date, the next period is to start from the survey due date.

~~5~~6 The survey due date may be extended in cases where a survey is carried out in accordance with the following **(1)** to **(5)**.

((1) to (5) are omitted.)

Table B8.3 has been amended as follows.

Table B8.3 Surveys of Oil Lubricated Shafts – Shafts Kind 1*B*, 1*C* or Shafts of Ships Whose Classification Characters Are Affixed with the Notation *PSCM*

(Table is omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2023.

Amendment 1-5

Chapter 5 SPECIAL SURVEYS

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

5.2.6 Thickness Measurements*

Table B5.8 has been amended as follows.

Table B5.8 Requirements for Thickness Measurements for Cargo Ships

Special Survey	Structural members subject to thickness measurement
1 Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Suspect areas (2) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)
2 Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) Suspect areas (2) Each plate in one section of the strength deck plating for the full beam of the ship within 0.5 *L* amidships (in way of a cargo space, if applicable) (3) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)
3 Special Survey for ships over 10 *years* and up to 15 *years* of age (Special Survey No.3)	(1) Suspect areas (2) Each plate and member in two transverse sections within 0.5 *L* amidships. (in way of two ~~different~~ cargo spaces, if applicable). When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (3) Internals in fore and aft. peak ballast tanks (4) Both ends and the middle part of each hatch side and end coaming (plating and stiffeners) (5) All cargo hold hatch covers (plating and stiffeners) (6) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)
4 Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) Suspect areas (2) The ~~F~~following portions of structural members: (a) All exposed main deck plates, full length (b) Each plate and member in three transverse sections ~~of cargo areas~~ within 0.5 *L* amidships (in way of cargo spaces, if applicable). When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (c) All wind and water strakes, port and starboard, full length (3) Representative exposed superstructure deck plating (poop, bridge and forecastle deck) (4) All keel plates, full length, and an appropriate number of bottom plates in way of cofferdams, machinery spaces and aft end of tanks (5) Plating of sea chests, and shell plating in way of overboard discharges (as deemed necessary by the Surveyor) (6) In all cargo holds, all lowest strakes and strakes in way of tween decks of all watertight transverse bulkheads in cargo spaces together with internals in way (7) Structural members specified in **(3)** to **(6)** of Special Survey No.3

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2023.

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.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part B Class Surveys

GUIDANCE

2023 AMENDMENT NO.1

Notice No.28 30 June 2023

Resolved by Technical Committee on 25 January 2023

Notice No.28 30 June 2023
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 1-1

B1 GENERAL

B1.1 Surveys

B1.1.2 Class Maintenance Surveys

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

1 Modifications and changes that are subject to Occasional Surveys referred to in **1.1.2-2(3), Part B of the Rules** are as specified in **(1)** through **(5)** below:

(1) Change in the purpose of combined deep water tank/oil tank/cargo hold
When such dual-purpose holds are intended to be used for cargoes exclusively, the Owner is to submit an application ~~for the change of purpose~~ form (**APP-CP**) to the Society. A part of the oil/ballast suction line is to be removed and blank flanges are to be fitted at the end of the line. Hydrostatic tests for the holds need not be carried out after the change.

((2) to (5) are omitted.)

B1.1.5 Postponement of Surveys

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

The procedure and approval of the postponement of Periodical Surveys specified in **1.1.5, Part B of the Rules** are to be handled in accordance with **(1)** and **(2)** below;

(1) Procedure for postponement of Surveys
The ship's Owner or Captain is to submit the documents listed below for approval to the Society before the due time of the Survey intended to be postponed. The documents are to be submitted at any one of our offices at the applicant's convenience. However, where the report file of the Class Survey is not part of the submission, then the documents must be submitted to the head office.
(a) Application ~~for postponement of Survey~~ form (**APP-PP**): 3 copies (or 2 copies in case where the application is to be submitted to the head office of the Society.)
(b) Report file of Class Surveys

((2) is omitted.)

B1.1.6 Modification of the Requirements

Sub-paragraph -3(1) has been amended as follows.

3 The procedures for internal examination, close-up survey, thickness measurements and hydrostatic tests of tanks and compartments required at Special Surveys carried out on the

continuous survey basis in accordance with the requirements in **1.1.6-4, Part B of the Rules** are to conform to the following requirements in **(1)** to **(5)**.

(1) Submission of application for CHS

Where the inspection and tests of the tanks and compartments of the hull are desired to be carried out under the CHS system, the applicant is to submit the inspection plan either on or ~~with~~ separately attached to the application form (**Form-CHS-AP**).

((2) to (5) are omitted.)

Paragraph B1.1.8 has been amended as follow.

B1.1.8 Laid-up Ships

For the commencement of lay-up, the Owner is required to submit the three copies of the ~~A~~application ~~for Lay-up of Ship~~ form (**Form B1-1**) to the Society's local office.

Form B1-1 has been deleted.

~~Form B1-1~~
~~(Omitted)~~

B2 CLASSIFICATION SURVEYS

B2.1 Classification Survey during Construction

B2.1.2 Submission of Plans and Documents for Approval

Sub-paragraph -5 has been amended as follows.

5 The requirements referred to as "the requirements stipulated otherwise by the Society" in **2.1.2-6, Part B of the Rules**, are specified below.

(1) Where a ship is built at the same place of manufacture based on plans and documents which have already been approved, the ~~"Application for exemption from submission of plans and documents of sister ship"~~ application form (**APP-SS-BHL**) and 3 copies of each of the following plans are to be submitted to the Society for approval ~~by the Society~~.
   (a) General Arrangement
   (b) Midship Section
   (c) Construction Profile & Deck Plan
   (d) Shell Expansion
   (e) Machinery Arrangement of Machinery Space
   (f) Shafting Arrangement
   (g) Piping Arrangement in Machinery Space

(2) Where machinery is built at the same place of manufacture based on plans and documents which have already been approved, 3 copies of the ~~"Application for exemption from submission of plans and documents of a sister ship"~~ application form (**APP-SS-BMC**) which includes the following information are to be submitted for approval by the Society.
   (a) Specification of Machinery
   (b) Drawing Number and approved date
   (c) Classification Number and Name of sister ship or Name of Shipyard and Ship Number of

sister ship

(d) Approval Number of the Machinery approved as of Standardized Design or Mass Production, if any

((3) is omitted.)

Sub-paragraph -6 has been amended as follows.

6 The wording “as stipulated otherwise by the Society” in **2.1.2-1, Part B of the Rules** refers to the following.

Where the applicant (stipulated in **2.3**, **Regulations for the Classification and Registry of Ships**) intends to get approval on plans and documents prior to submission of an application for alterations (stipulated in **2.5, Part B of the Rules**) or classification and surveys of the ship, an application ~~for prior approval of plans and documents~~ form (**APP-PE-STB**) is to be submitted to the Society.

Form 1 has been deleted.

~~Form 1~~
~~(Omitted)~~

Form 2 has been deleted.

~~Form 2~~
~~(Omitted)~~

B9 PLANNED MACHINERY SURVEYS

B9.1 Planned Machinery Surveys

B9.1.2 Continuous Machinery Surveys (CMS)

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

2 Application for CMS

(1) To apply for CMS, the shipowner or agent is to submit three copies of the following documents in the prescribed format (one for the Society's files, the ship and the shipowner) to the Society before the first survey after the Classification Survey or the previous Special Survey.

(a) Application ~~for CMS~~ form (**Form-CMS-1E**)

(b) CMS Program

((2) is omitted.)

B9.1.3 Planned Machinery Maintenance Scheme (PMS)

Sub-paragraph -3 has been amended as follows.

3 Application Procedure for PMS

To apply for PMS, the shipowner or ship management company or representative is to submit an ~~A~~application ~~for PMS accompanying~~ form (**Form-PMS-AP**) together with the following documents to the Society.

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

B9.1.4 Condition Based Maintenance Scheme (CBM)

Sub-paragraph -4 has been amended as follows.

4 Application Procedure for CBM

To apply for CBM, the shipowner or ship management company or representative is to submit an ~~A~~application ~~for CBM accompanying~~ form (**Form-CBM-AP**) together with the following documents to the Society. The baseline data specified in **(1)(i)** may be submitted to the Society so as to be approved before the implementation survey specified in **-6(2)**.

B13 SPECIAL REQUIREMENTS OF PERIODICAL SURVEYS FOR OFFSHORE STRUCTURES

B13.2 Preparation of Surveys and Inspections

B13.2.2 Inspection Companies Carrying Out Inspections, Measurements and Maintenance

Sub-paragraph -3 has been amended as follows.

3 Where the inspection company wishes to use inspection equipment or inspection robots for the inspection of offshore structures, it is to submit an application form (**APP-IR**) together with the documents specified in the following **(1)** to **(9)** to the Society before inspections are carried out. Inspection companies approved by the Society as a provider of in-water inspection services or thickness gauging services are to submit a copy of the relevant approval certificate.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2023.

Amendment 1-2

B1 GENERAL

B1.4 Preparation for Survey and Other Items

B1.4.2 Preparation for Surveys

Sub-paragraph -16 has been amended as follows.

16 The ~~following~~ preparations are to be made before carrying out the engine tests specified in **2.3.1-1(5), Part B of the Rules** ~~and~~ in accordance with **2.6.1-2(1), Part D of the Rules**~~:~~.

~~(1) All relevant equipment for the safety of attending personnel such as oil mist detection arrangements, overspeed protective devices and any other shut down functions are to be made available and are to be operational.~~

~~(2) The overspeed protective device is to be set to a value which is not higher than the allowable overspeed value. This set point is to be verified by the surveyor.~~

~~(3) The engines are to be run as prescribed by the engine manufacturer.~~

~~(4) All fluids used for testing purposes (fuel oils, lubrication oils, cooling water, etc., including all fluids used temporarily or repeatedly for testing purposes only) are to be suitable for their intended purposes (i.e., they are to be clean, preheated if necessary and cause no harm to engine parts).~~

B2 CLASSIFICATION SURVEYS

B2.3 Sea Trials and Stability Experiments

Paragraph B2.3.1 has been amended as follows.

B2.3.1 Sea Trials

1 The Speed test required by **2.3.1-1(1), Part B of the Rules** is to be carried out in accordance with **(1)** and **(2)** below.

(1) For ships that are to perform the speed test in full load condition, the ship speed defined in **2.1.8, Part A of the Rules** is to be confirmed. For ships that are unable to perform the speed test in full load condition, the ship speed at maximum continuous revolution of the main engine is to be confirmed. This speed is referred to as the "maximum speed of the ship" hereinafter.

(2) The ship speed at main engine outputs specified in **Table B2.3.1-5** (not including 110% and minimum revolutions) is also to be confirmed.

2 The Astern test required by **2.3.1-1(2), Part B of the Rules** is to be carried out in accordance with the following **(1)** to **(3).**

(1) It is to be confirmed that the machinery is functioning normally while the ship is running astern. The main engine is to be kept at a rate of more than 70% of the maximum continuous revolutions. The ship is to be kept running astern for the periods specified in **(a)** and **(b)** below corresponding to the type of engine and the performance is to be confirmed in accordance with **1.3.2, Part D of the Rules**.

(a) For ships with main engines other than steam turbines

Until the astern speed (rotational speed in rpm) stabilizes.

(b) For ships with steam turbines

A period of at least 15 *minutes*; the astern trial, however, is to be limited to 30 *minutes* or in accordance with manufacturer's recommendation to avoid overheating of the turbine due to the effects of "windage" and friction.

(2) For low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled dual fuel engines, the confirmation specified in **(1)(a)** is to be carried out for all operating modes (i.e. the applicable gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (*See* **2.5.1-1(1) in Annex 4, Part GF** or **2.5.1-1.(1) in Annex 4, Part N**).

(3) To high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in **(2)** apply mutatis mutandis.

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 **(10)** in addition to **2.3.1-2, Part B of the Rules**. However, the tests required in **(3)**, **(6)**, **(7)**, **(8)**, **(9)** and **(10)** may be dispensed with where such tests have been carried out either at dockside or in dry dock.

(1) Running tests of the power units, including transfer between power units

(2) Isolation tests of one hydraulic actuating system including checking the time for regaining steering capability

(3) Tests of the hydraulic fluid recharging system

(4) Tests of the emergency power supply required by **15.2.6, Part D of the Rules**

(5) 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

(6) Tests of the means of communication between the navigating bridge and the engine room, and

between the engine room and the steering gear compartment

(7) Function tests of indicators for alarms, rudder angle indicator and power units required by **Chapter 15, Part D of the Rules**

(8) Function tests of indicators for power failure and overcurrent alarms, operating condition of electric motor, and relief valves for preventing overpressure

(9) Function tests of the rudder stoppers

(10) Where the steering gear is designed to avoid hydraulic locking, a demonstration of this feature

4 The performance tests of machinery installations required by **2.3.1-1(5), Part B of the Rules** are to include the following **(1)** to **(10)** in order to verify that the machinery installations have sufficient normal functions and reliability and are free from detrimental vibration within the numbers of revolutions used. However, these tests may be dispensed with where such tests have been conducted while the ship was anchored or at dockside. The details of these tests may be found in *JIS F* 0801 "Test Code of Propelling Machinery at Sea Trials" or other documents considered equivalent thereto. The preparations specified in **B1.4.2-16** are to be made before tests are carried out.

(1) For reciprocating internal combustion engines, the output test shown in **Table B2.3.1-4**, is to be used as the standard. For reciprocating internal combustion engines driving generators or auxiliary machinery (excluding auxiliary machinery for specific uses), operating tests may be carried out at the appropriate time after installation on board.

(2) For steam turbines and gas turbines used as main propulsion machinery, the output test is to be carried out at 3 or 4 levels of power output selected from normal continuous cruise power run and 4/4, 3/4, 2/4 and 1/4 of the maximum continuous output of the engine.

(3) Operating tests for starting devices

It is to be confirmed that the engines start continuously for the number required by **2.5.3-2** or **4.4.3-2, Part D of the Rules**.

(4) Function tests of the alarms and safety devices

Function tests of the alarms and safety devices required by **2.4**, **3.3** and **4.3, Part D of the Rules** are to be carried out.

(5) Fuel suitability

The suitability of residual and other special fuels for use in the engine is to be confirmed. However, this test may be dispensed with where the suitability has already been demonstrated at the shop trial.

(6) Governor tests

For reciprocating internal combustion engines driving main sources of electrical power (including reciprocating internal combustion engines driving generators for both propulsion and main power supply), the characteristics for governors specified in **2.4.1-5(1), Part D of the Rules** are to be confirmed.

(7) Function tests of the safety devices and alarms of boilers

(8) Function tests of the safety devices and alarms of exhaust gas economizers

(9) Low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled engines are to comply with the requirements specified in **(1)** and **(6)**. For low pressure gas-fuelled dual-fuel engines, the output tests and governor tests are to be carried out for all operating modes (i.e. the gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (*See* **2.5.1-1(1) in Annex 4, Part GF** or **2.5.1-1.(1) in Annex 4, Part N**). The 110% load test is not required for the gas mode.

(10) To high pressure gas-fuelled engines, the requirements for low pressure gas-fuelled engines specified in **(9)** apply mutatis mutandis.

5 With respect to **2.3.1-1(6), Part B of the Rules**, each windlass is to be tested in accordance with the following **(1)** to **(3)** under working conditions after installation on board in order to

demonstrate satisfactory operation and confirm that their construction and associated equipment are in good condition.

(1) Operation test

Each unit is to be independently tested for **(a)** to **(h)** below:

(a) Braking

(b) Clutch functioning

(c) Lowering and hoisting of the chain cable and the anchor

(d) Proper riding of the chain cable over the cable lifter

(e) Proper transit of the chain cable through the hawse pipe and the chain pipe

(f) Effecting proper stowage of the chain cable and the anchor

(g) Proper seating of the anchors in the stored position

(h) Proper function of the chain cable stoppers if fitted

(2) Load test

Initially with 3 shots of chain cable (82.5 *m* or 45 *fathoms* in length) and the anchor submerged and hanging free, the test is to be carried out in accordance with the manner specified in **(a)** to **(c)** below. For **(a)** and **(b)**, it is to be measured and verified that the mean hoisting speed is not less than 0.15 *m/s*. Where it is difficult to have 3 shots of chain cable kept submerged due to the ship's locale, an alternative test approved by the Society may be employed.

(a) Hoisting up 2 shots of chain cable on one side

(b) Hoisting up 2 shots of chain cable on the other side of **(a)**

(c) Hoisting up one shot of chain cable together on both sides

(3) Cable lifter brake capacity test

The braking capacity is to be tested by intermittently paying out and holding the chain cable by means of the application of the brake at every 1/2 shot of chain cable.

Table B2.3.1-4 Sea Trials of Reciprocating Internal Combustion Engines

Test items		Use of engines		
		Main engines of ships in which reciprocating internal combustion engines are used as main propulsion machinery (excluding electric propulsion ships) (1)	Reciprocating internal combustion engines driving generators (including main engines of electric propulsion ships) (2)	Reciprocating internal combustion engines driving auxiliaries (excluding auxiliary machinery for specific use etc.)
Load test	110% power run	—	10 *minutes* at n_0 (n_0 is the rated engine speed.) (3)	—
	100% power (rated power) run	4 *hours* at engine speed in accordance with propeller curve (4) (5) (6)	1 *hour* at n_0 (3)	30 *minutes* at n_0
Overspeed run		30 *minutes* at $1.032n_0$ or more (7) (8)	—	—
Minimum revolution test of main engine (9)		○ (7)	—	—
Intermittent overload (10)		○		○

Notes:

(1) After testing has been completed, the fuel delivery system is to be blocked so as to limit the engines to run at not more than 100% power, excluding propulsion engines for which intermittent overload is approved as well as propulsion engines also driving generators.

(2) The tests are to be performed based on the rated electrical powers of the driven generators.

(3) This may, if possible, be done during the electrical propulsion plant test, which is tested at 100% propulsion power (i.e., total electric motor capacity for propulsion) by distributing the power on as few generators as possible. The duration of

this test is to be sufficient to reach the stable operating temperatures of all rotating machines or for at least 4 hours. When some of the generator set(s) cannot be tested due to insufficient time during the propulsion system test mentioned above, those required tests are to be carried out separately.

(4) In the case of controllable pitch propellers, the test is to be performed at rated engine speed n_0 at a propeller pitch leading to 100% power, or to the maximum achievable power if 100% power cannot be reached.

(5) In the case of propulsion engines also driving generators, tests are to be also carried out for 2 hours at 100% propeller branch power (unless already covered in the test at 100% power) and 1 hour with 100% power take off branch power at rated engine speed n_0 in addition to the test for 4 hours at 100% power.

(6) For ships in which the tests specified in **2.2.5-2(1), Rules for Automatic and Remote Control Systems** are performed for not less than 4 hours at 100% power, the 100% power test specified in this table may be omitted.

(7) Only for engines driving fixed pitch propellers.

(8) The test may be omitted if a 100% power test is performed at $1.032n_0$ or more. In cases where engine speed cannot reach the specified speed due to the planned propeller curve, etc., an overspeed test may be performed at maximum achievable continuous revolution (i.e., maximum engine speed within the range of torque limit, etc.).

(9) The test is to be carried out to identify the minimum working revolution of the main engine when the ship is steered to the maximum rudder angle.

(10) Only for engines for which intermittent overload is approved. The test is to be performed for the duration agreed upon with the manufacturer.

6 Function tests of the control systems for main propulsion machinery or controllable pitch propellers, boilers and electric generating sets required by **2.3.1-1(7), Part B of the Rules** are to be carried out in accordance with the following **(1)** to **(5)**. However, where these tests have been carried out when the ship was anchored or at dockside, some of these tests may be dispensed with at the sea trial.

(1) The control systems for main propulsion machinery and controllable pitch propellers are to be subjected to the following **(a)** to **(d)**.

(a) The main propulsion machinery or the controllable pitch propellers are to be subjected to starting tests, ahead-astern tests and running tests in the whole range of output, by means of the remote control devices in the main control station or the main control station on the bridge.

(b) In addition to output increase and decrease tests, the operation tests of the main propulsion machinery or the controllable pitch propellers using the bridge control devices are to be carried out. Where operation tests were carried out for the entire output range by the bridge control devices, consideration may be given to reduction of the test items with the exception of the starting test.

(c) Where there are two or more control stations for main propulsion machinery or controllable pitch propellers, the test on transfer of control is to be carried out while the ship is running ahead and when it is running astern. Where the remote devices for main propulsion machinery or controllable pitch propellers is in accordance with **18.3.2-2(3)(b), Part D of the Rules**, the above-mentioned test may be carried out while the main propulsion machinery is stopped.

(d) After completion of the test on transfer of control specified in **(c)**, a demonstration that the main propulsion machinery or the controllable pitch propellers can be smoothly operated from the respective control stations is to be conducted.

(2) Boilers

Function tests of the control systems for boilers are to be carried out in accordance with the following **(a)** to **(c)**.

(a) It is to be confirmed that devices such as for feed water control and combustion can operate stably in response to load variations of the main boilers, and the main boilers can supply steam stably to main propulsion machinery, electric generating sets and auxiliary machinery essential for main propulsion of the ship without local manual operation.

(b) With respect to essential auxiliary boilers, it is to be confirmed that they can supply

steam stably to auxiliary machinery essential for main propulsion of the ship without manual operation.

(c) Where an exhaust gas economizer is used as a source of steam for driving a generator and the boiler supplies extra steam automatically during power loss, operation tests of the automatic control devices for this system are to be carried out.

(3) Electric Generation Sets

Where generators supply electrical power to the loads necessary for propulsion of the ship, their motive power is relying upon the propulsion systems, tests of functioning of the systems of automatic or remote control of electric generating sets are to be carried out.

(4) For the electric generating sets specified in **3.2.1-3, Part H of the Rules** the following items are to be confirmed while the main propulsion machinery is operating in normal continuous cruise output. However, in cases where the main propulsion machinery is operating at an output other than normal continuous cruising output, the tests may be carried out while main propulsion machinery is operating at said output on the condition that all active peripheral equipment are operating at outputs that are the same as the normal continuous cruising output of the main propulsion machinery.

(a) Where only one electric generating set is normally used, the standby generator, air circuit breakers, and important auxiliary machinery start up automatically when the main source of electrical power is stopped by tripping a circuit breaker

(b) Where two electric generating sets are normally used, preference tripping of unnecessary loads is performed and propulsion and steering of the ship are maintained, when the circuit breaker of one of the sets is tripped

(5) The "electric generating sets specified in **3.2.1-3, Part H of the Rules**" mentioned in **(4)** above, refer to the application of **6.2.11-1** and **-3, Part H of the Rules** for the ships specified in **6.1.1, Part H of the Rules**.

7 The accumulation tests of boilers required by **2.3.1-1(8), Part B of the Rules**, are to be carried out in accordance with the following **(1)** to **(3)**.

(1) The accumulation test is to be conducted as specified in **(a)** and **(b)** below while the boiler is under the maximum firing condition. However, where data on the evaporation of the boiler submitted to the Society has been approved, the accumulation test specified in **(a)** may be dispensed with.

(a) When the safety valves of the boiler blow with all the stop valves closed, except for the valves for steam supply to machinery necessary to operate the boiler, the accumulation of pressure in the boiler drum is not to exceed 110% of the approved working pressure. However, the feed water necessary to maintain a safe water level may be supplied.

(b) For boilers with a superheater, where the accumulation test might overheat the superheater, the operation test of the means specified in **9.9.3-8, Part D** of the Rules may be carried out as an alternative after shutting off the main steam supply. In this case, the lift of each safety valve is to be checked beforehand.

(2) The accumulation test specified in **(1)** may be carried out at an appropriate time when the ship is anchored or at dockside.

(3) For boilers which are capable of refiring while using an exhaust gas economizer, in principle, the accumulation test is to be carried out in accordance with the methods specified in **(1)(a)** and **(b)** under the maximum firing condition and at the maximum continuous output of the main engine.

8 The measurements of the torsional vibration for shafting systems required by **2.3.1-1(9), Part B of the Rules** are to be carried out in accordance with the following **(1)** to **(3)**.

(1) Measurements are to be carried out in accordance with the requirements of **8.1.3, Part D of the Rules**.

~~In cases where the confirmation of engine running conditions specified in **8.1.3-2, Part D of the Rules** is performed at the estimated upper and lower borders by calculation, it is recommended that the fuel index around estimated borders also be confirmed with consideration given to possible differences between estimated borders and actual borders confirmed through measurements.~~

~~(2) For low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled dual fuel engines, the measurements specified in **(1)** are to be carried out for both the diesel and gas mode. However, measurements in either diesel mode or in the gas mode (but not both modes) may be omitted where considered appropriate by the Society based upon relevant torsional vibration calculation sheets of diesel and gas mode.~~

~~(3) For high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in **(2)** apply mutatis mutandis.~~

~~**9** With respect to the measurement of the sound pressure levels of fixed fire detection and fire alarm systems specified in **2.3.1-1(10), Part B of the Rules**, the sound levels specified in **29.2.5-1(9), Part R of the Rules** are to be carried out by suitable instrument.~~

~~**10** "Verification of Total Harmonic Distortion (THD) calculation report" stipulated in **2.3.1-1(12), Part B of the Rules** refers to the measuring of the Total Harmonic Distortion (THD) value of the main busbar so as to confirm that said value does not exceed the acceptable limit given in the report.~~

~~11~~ 1 "Tests where deemed necessary by the Society" in **2.3.1-1(13), Part B of the Rules**, refers to the tests and examinations mentioned in the following **(1)** to **(8)**.

(1) For ships having multiple propellers or multiple main engines, sea trials are to be carried out under the assumption that one propeller or engine is inoperable due to failure to confirm that the ship can be manoeuvred properly in that condition.

(2) For propulsion gears where the total face width (in case of double helical gears, the central gap is included) exceed 300 *mm* or where the ratio of the total face width to pitch circle diameter of the pinion exceeds 2, the contact marking of the teeth is to be verified by coating thinly and uniformly with suitable paint on the tooth flank.

(3) When the ship is provided with supplementary means for manoeuvring or stopping, performance tests of such means are to be carried out.

(4) Open-up inspection of cylinders may be required after sea trials when considered necessary by the Society.

(5) Sea trials for ships with electrical propulsion plants are to be carried out in accordance with the test procedures deemed appropriate by the Society. For the test of ship manoeuvrability, refer to the test procedures shown in **Annex 2.3.1-1**.

(6) In addition to the tests specified in **~~B~~2.3.1-5 2.3.1-1(5), Part B of the Rules**, the Society may require other tests found in *JIS F* 0801 "Test Code of Propelling Machinery at Sea Trials" or other documents considered equivalent thereto.

(7) For ships carrying liquefied gases in bulk, ships carrying dangerous chemicals in bulk and other ships whose length is not less than 100 *m*, sea trials to ascertain initial turning ability, yaw, and course keeping abilities are to be carried out. However, this test need not be carried out for ships whose manoeuvring characteristics are confirmed by sufficient data on the ship and test type, as well as information from sources such as the sea trials of sister ships and model tests. For other ships, this test is recommended.

(8) For ships having exhaust gas recirculation systems, running tests of engines are to be carried out with exhaust gas recirculation systems in operation, and the satisfactory operation of the engine and exhaust gas recirculation system is to be confirmed.

~~12~~ 2 In applying **2.3.1-2(1), Part B of the Rules**, if the rudder cannot be fully submerged at even keel, the draught that the rudder is fully submerged (at zero speed waterline) in which the vessel is

in an acceptable trim condition can be accepted.

~~13~~3 In applying **2.3.1-2(3), Part B of the Rules**, the following **(1)** or **(2)** is to be applied. Alternatively, the designer or builder may use computational fluid dynamic (CFD) studies or experimental investigations to predict the rudder stock moment (torque in the rudder stock) in the full load condition and at the service speed. These calculations or experimental investigations are to be verified by the Society.

(1) The rudder torque in the the full load condition and at the speed of ship defined in **2.1.8, Part A of the Rules** is to be predicted using the following extrapolation formula. There is, however, no need for extrapolation where A_T is greater than $0.95A_F$.

$Q_F = Q_T\alpha$

Q_F: the rudder stock moment (torque in the rudder stock) for the full load condition and the speed of ship defined in **2.1.8, Part A of the Rules**

Q_T: the rudder stock moment (torque in the rudder stock) for the trial condition

α : the extrapolation factor in accordance with the following formula:

$$\alpha = 1.25(\frac{A_F}{A_T})(\frac{V_F}{V_T})^2$$

A_F: the total immersed projected area of the movable part of the rudder in the full load condition

A_T: the total immersed projected area of the movable part of the rudder in the trial condition

V_F: the contractual design speed of the vessel corresponding to the maximum continuous revolutions of the main engine in the full load condition

V_T: the measured speed of the vessel (considering current) in the trial condition

(2) Where the rudder actuator system pressure is shown to have a linear relationship to the rudder stock torque, the above equation can be taken in accordance with the following formula. Where constant volume fixed displacement pumps are utilized, **15.2.2(1)** or **15.2.3(1), Part D of the Rules** can be deemed satisfied if the estimated steering actuator hydraulic pressure in the full load condition is less than the specified maximum working pressure of the rudder actuator. Where a variable delivery pump is utilized, pump data are to be supplied and interpreted to estimate the delivered flow rate corresponds to the full load condition in order to calculate the steering time and allow it to be compared to the required time.

$P_F = P_T\alpha$

P_F: the estimated steering actuator hydraulic pressure in the full load condition

P_T: the maximum measured actuator hydraulic pressure in the trial condition

~~14~~4 "Otherwise stipulated by the Society" in **2.3.1-1(3), Part B of the Rules**, means following **(1)** and **(2)**. However, 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)** and **(2)** have been made after the previous tests and the Society deems it appropriate.

(1) For waterjet propulsion systems, the following tests are to be carried out. However, those tests required in **(c)** to **(g)** may be carried out either at dockside or in dry dock.
   (a) Tests on steering capabilities specified in **19.5.1, Part D of the Rules**
   (b) Tests on operation of controls for steering systems, including tests on change-overs of control systems between navigation bridges and auxiliary steering stations, and change-overs between manual steering and automatic steering, if provided
   (c) Tests on measures for maintaining power supplies and on the alternative source of power required by **19.6.2, Part D of the Rules.**
   (d) Tests on means of communication between navigation bridges and auxiliary steering

stations, and between engine rooms and auxiliary steering stations

(e) Tests on the functioning of relief valves for preventing over-pressure

(f) Tests on the functioning of alarm and safety devices, and indication devices for deflector positions, reverser positions and impeller speed, and running indicators of electric motors for steering actuating systems

(g) Tests on the functioning of stoppers of reversers

(2) For azimuth thrusters, the following tests are to be carried out. However, those tests required in **(c)** to **(f)** may be carried out either at dockside or in dry dock. Also, when it is difficult to carry out tests on the functioning of relief valves mentioned in **(e)** after installation on board, these tests may be carried out as shop tests.

(a) Tests on steering capability specified in **20.5.1, Part D of the Rules**

(b) Tests on the operation of controls for steering, including tests on change-overs of control systems between navigation bridges and azimuth thruster compartments, and change-overs between manual steering and automatic steering, if provided

(c) Tests on measures for maintaining power supplies and on the alternative source of power required in **20.6.2, Part D of the Rules**

(d) Tests on means of communication between navigation bridges and the azimuth thruster compartments, and between engine rooms and azimuth thruster compartments

(e) Tests on the functioning of relief valves for preventing over-pressure

(f) Tests on the functioning of alarm and safety devices as well as indication devices for azimuth angles, propeller speeds and direction of rotation and pitch positions, and running indicators of electric motors for azimuth steering gears

5 In applying **2.3.1-2(5), Part B of the Rules**, the details for such tests may be found in *JIS F* 0801 “Test Code of Propelling Machinery at Sea Trials” or other documents considered equivalent thereto.

B3 ANNUAL SURVEYS

B3.2 Annual Surveys for Hull, Equipment, Fire Extinction and Fittings

B3.2.2 General Examination

Sub-paragraph -7 has been amended as follows.

7 When applying the requirements of item 2~~6~~7 and item 2~~7~~8 of **Table B3.2, Part B of the Rules**, resistance testing is to be carried out for all electrical bonding to confirm that resistance is not greater than 1 *MΩ* in cases where bonding straps are not provided as electrical bonding between fuel storage tanks or fuel piping and hull structures, or in cases where the Surveyor deems such testing to be necessary. However, such measurements may be omitted at the discretion of the Surveyor in cases where accurate measurement records are maintained and can be verified.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 June 2023.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to the surveys for which the application is submitted to the Society before the effective date.

Amendment 1-3

B1 GENERAL

B1.1 Surveys

B1.1.3 Intervals of Class Maintenance Surveys

Sub-paragraph -3 has been amended as follows.

3 The Occasional Surveys specified in **1.1.3-3(5), Part B of the Rules** are as specified below:
((1) to (3) are omitted.)

(4) Additional requirement for fittings on exposed fore deck
For bulk carriers, general dry cargo ships (excluding container vessels, vehicle carriers, Ro-Ro ships and woodchip carriers), and combination carriers (e.g. OBO ships, Ore/Oil Carriers, etc.) of length (~~*L*~~$_1$*L*$_C$) 100 *m* or more (where, ~~*L*~~$_1$*L*$_C$ is the length of ship specified in ~~**15.2.1-1,**~~ **1.4.3.1-1, Part 1, Part C of the Rules**) which have been contracted for construction prior to 1 January 2004, a survey is to be carried out to verify compliance with the requirements specified in **(a)** and implementation schemes specified in **(b)**.
((a) and (b) are omitted.)

(5) Water level detection and alarm systems on single hold cargo ships
For cargo ships having a single cargo hold below the freeboard deck or cargo holds below the freeboard deck which are not separated by at least one bulkhead made watertight up to that deck, a survey is to be carried out to verify that the water level detection and alarm systems specified in **13.8.6, Part D of the Rules** are provided not later than the date of the first intermediate or special survey of the ship after 1 January 2007. Notwithstanding the above, the following ships are not required to have such a system.
(a) Ships of less than 500 *gross tonnage*
(b) Ships not engaged on international voyages
(c) Bulk carriers as defined in **1.3.1(13), Part B of the Rules** which had been at the beginning stage of construction before 1 July 2006
(d) Bulk carriers as defined in ~~**31A.1.2(1),**~~ **An1.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules** which had been at the beginning stage of construction on or after 1 July 2006
(e) Ships having a length (L_f) of not less than:
i) 80 *m*, for ships that had been at the beginning stage of construction on or after 1 July 1998
ii) 100 *m*, for ships that had been at the beginning stage of construction before 1 July 1998
(f) Ships complying with the requirements of **13.8.6, Part D of the Rules**
(g) Ships having watertight side compartments each side of the cargo hold length extending vertically at least from inner bottom to freeboard deck and breadths of which are not to be less than 760 *mm* measured perpendicular to the side shell

((6) to (8) are omitted.)

(9) Emergency towing procedures
For cargo ships not less than 500 *gross tonnage* engaged on international voyages which had been at the beginning stage of construction prior to 1 January 2010, a survey is to be carried out by 1 January 2012 to verify that the emergency towing procedures specified in ~~**27.4, Part C**~~ **14.5.3, Part 1, Part C of the Rules** or **23.3, Part CS of the Rules** are provided.

((10) to (24) are omitted.)

B1.1.6 Modification of the Requirements

Sub-paragraph -2 has been amended as follows.

2 Conditions that "the Surveyor considers … necessary" as used in **1.1.6-2, Part B of the Rules** means any of the following ~~**(1) to (3)**~~ and **(2)**:

(1) Where the condition of protective coating in the compartment is poor

(2) Where there are tanks or cargo holds similar in structure to tanks, cargo holds or ships that have experienced defects

~~(3) Where the scantlings of structural members are decreased subject to the approved measure of corrosion control in accordance with the requirements in **1.1.21, Part C of the Rules**.~~

B1.3 Definitions

B1.3.1 Terms

Sub-paragraph -3(4) has been amended as follows.

3 "Hatch covers and hatch coamings for cargo holds of ships stipulated otherwise by the Society" in **1.3.1(6)(b), Part B of the Rules** is as specified in the following **(1)** to **(4)**.

((1) to (3) are omitted.)

(4) Hatch covers and hatch coamings of ships complying with the requirements in ~~**20.2**~~**14.6, Part 1, Part C of the Rules** or **19.2, Part CS of the Rules,** and ships which are contracted for construction on or after 1 July 2012

Renewal thickness ($t_{renewal}$) is given by the following formula. If a voluntary addition is included in the as built thickness, the value may be at the discretion of the Society.

$t_{renewal} = t_{as\text{-}built} - t_c + 0.5$ (*mm*)

$t_{as\text{-}built}$: as built thickness (*mm*)

t_c: Corrosion addition specified in **Table B1.3.1-1(d)**

Where corrosion addition t_c is 1.0 (*mm*), renewal thickness may be given by the formula $t_{renewal} = t_{as\text{-}built} - t_c$ (*mm*)

Sub-paragraph -4 has been amended as follows.

4 For transverse watertight bulkheads in cargo holds complying with the provision of ~~**Chapter 31A,**~~ **Annex 1.1, Part 2-2, Part C of the Rules**, as specified in **1.3.1(6)(c), Part B of the Rules**, the renewal thickness is given by the following **(1)** and **(2)**.

(1) For ships that have the application for Classification Survey during Construction submitted to the Society prior to 1 July 2007, renewal thickness ($t_{renewal}$) is given by the following formula. If a voluntary addition is included in the as built thickness, the value may be at the discretion of the Society.

$t_{renewal} = t_{as\text{-}built} - 3.0$ (*mm*)

$t_{as\text{-}built}$: as built thickness (*mm*)

(2) For ships that have the application for Classification Survey during Construction submitted to the Society on or after 1 July 2007, renewal thickness ($t_{renewal}$) is given by the value indicated in the structural drawings in accordance with the requirements in ~~**31A.3.6,**~~ **An3.6, Annex 1.1, Part 2-2, Part C of the Rules.**

B1.4 Preparation for Survey and Other Items

B1.4.2 Preparation for Surveys

Sub-paragraph -2 has been amended as follows.

2 The applicant is to make the necessary preparations so that tests and examinations to reveal corrosion, deformation, fractures, damage, or other structural deterioration can be conducted smoothly. This includes cleaning compartments; freeing water, scale, dirt, oil residues and gas; and providing means of access, sufficient lighting, non-destructive testing equipment and other necessary items. Furthermore, casings, ceilings or linings, and loose insulation, where fitted, are to be removed as required by the Surveyor. However, the areas of structural members already designated for renewal need only be cleaned and descaled to the extent necessary to determine the limits of renewal. The means of access to the survey area (e.g. temporary staging and rafts) is to comply with the requirements specified in **Means of Access, ~~Chapter 35,~~ 14.16, Part 1, Part C of the Rules** and the soundness of its construction is to be verified.

Sub-paragraph -12 has been amended as follows.

12 For bulk carriers as defined in **1.3.1(13), Part B of the Rules** and bulk carriers as defined in **~~31A.1.2(1),~~ An1.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules** which are at the beginning stage of construction on or after 1 July 2006, the Surveyor is to confirm that the hatch covers on these ships are maintained in accordance with the resolution *MSC*.169(79) "*Standards for owner's inspection and maintenance of bulk carrier hatch covers*" by investigation of inspection records. Notwithstanding the above, this requirement may be waived for bulk carriers of less than 500 *gross tonnage* and those not engaged on international voyages with the Class Notation "*Coasting Service*", "*Smooth Water Service*."

B2 CLASSIFICATION SURVEYS

B2.1 Classification Survey during Construction

B2.1.2 Submission of Plans and Documents for Approval

Sub-paragraph -1 has been amended as follows.

1 The plans required to be submitted for approval in **2.1.2, Part B of the Rules** are to indicate the following items.

(1) Hull structural drawings are to include scantling details, material details, location of butts and seams, cross section details as necessary, details of welding such as sizes and proportions applicable to the ship, and other necessary information unless specified otherwise. For hull structures subject to the requirements of ~~**31A.3.6, Part C**~~ **An3.6, Annex 1.1, Part 2-2, Part C of the Rules,** **Part CSR-B**, **Part CSR-T** or **Part CSR-B&T of the Rules**, renewal thicknesses are to be indicated in the relevant drawings. In addition, for structural members of ships subject to *SOLAS Chapter II-1 Regulation 3-10*, net (renewal) scantlings, as built scantlings and voluntary addition thickness are to be indicated.

(2) Midship Section

~~(a) d_s and L, V, W and C_B corresponding to d_s, where the provisions in **Part C of the Rules** are applied and the scantling draught (d_s) is larger than d specified in **2.1.12, Part A of the Rules**~~

(~~b~~a) The kind of freeboard assigned by the requirements of **Part V of the Rules**

(~~c~~b) Draught in *metres* corresponding to the designed timber freeboard, where the timber load line is intended to be marked

(~~d~~c) The position of the freeboard deck in ships with multiple decks

((3) to (6) are omitted.)

Sub-paragraph -4 has been amended as follows.

4 The wording "in cases where the requirements are separately provided by the Society" in **2.1.2-5, Part B of the Rules** refers to the cases where the accuracy of the calculations have been confirmed according to ~~**C34.1.3-2(2), Part C of the Guidance**~~ **3.8.3.2-2, Part 1, Part C of the Rules**.

Sub-paragraph -10 has been amended as follows.

10 The "drawings indicating critical structural areas" referred to in **2.1.2-14, Part B of the Rules** means drawings indicating locations which have been identified from calculations to require monitoring or from the service history of similar or sister ships to be sensitive to cracking, buckling or corrosion which would impair the structural integrity of the ship. The following **(1)** and **(2)** are to be considered depending on the subject ships:

(1) For ships subject to the provisions of **14.16.3, Part 1, Part C of the Rules**, drawings are to include the critical structural areas indicated in the ship structural access manuals specified in ~~**35.2.6,**~~ **14.16.3.6, Part 1, Part C of the Rules.**

(2) For ships subject to *SOLAS Chapter II-1 Regulation 3-10*, drawings are to be consistent with information "areas requiring special attention throughout the ship's life, including critical structural areas" included in the Ship Construction File specified in **2.1.6-3(13), Part B of the Rules**.

B2.1.4 Presence of Surveyor

Sub-paragraph -6 has been amended as follows.

6 After installation, loading computers specified in **2.1.4-1(10), Part B of the Rules** are to have an operating test carried out in the presence of the Surveyor, using several of the loading conditions examined in accordance with ~~**C34.1.3-2, Part C of the Guidance**~~ **3.8.3.2-2, Part 1, Part C of the Rules**, in order to confirm that the performance and functions of the loading computer are satisfactory.

B2.5 Alterations

B2.5.1 Examination of Altered Parts

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

1 In applying **2.5.1-1, Part B of the Rules**, in the case of the "application of modification, etc. which affects a main particular of a ship" (hereinafter referred to as "application of major conversion"), the following are to apply, except in cases where specified by the Society or Administration:

(1) A "Major Conversion", for example, refers to (but is not limited to) the following cases:
   (a) Alteration of the dimensions of a ship; for example, the lengthening of a ship by adding a new midbody.
   (b) Change of ship type; for example, the conversion from tanker to bulk carrier.
   (c) Modification of construction which affects necessary requirements related to ship subdivisions. For ships not falling under any of the following **i)** to **iii)**, with respect to Required Subdivision Index (*R*) and Attained Subdivision Index (*A*) that are specified in ~~**4.2,**~~ **2.3.2, Part 1, Part C of the Rules**, it is demonstrated that the *A/R* ratio calculated for the ship after such a modification is not less than the *A/R* ratio calculated for the ship before the modification. However, in cases where the ship's *A/R* ratio before modification is equal to or greater than 1, it is necessary that the ship's *A/R* ratio after modification be equal to or greater than 1.
      i) Ships for which the building contract is placed on or after 1 January 2020
      ii) In the absence of a building contract, the keel of ships is laid or which are at a similar stage of construction on or after 1 July 2020
      iii) The delivery of ships is on or after 1 January 2024.

((2) and (3) are omitted.)

Sub-paragraph -2 has been amended as follows.

2 In applying **2.5.1-1, Part B of the Rules**, in cases where single hull oil tankers are converted to double hull oil tanker or bulk carriers, except where specified by the Society or Administration, in addition the above requirement **-1**, the following requirements are to be complied with:

(1) With respect to the requirements on subdivision specified in ~~**Chapter 4**~~**2.3, Part 1, Part C of the Rules**, the requirements in accordance with ship's type after conversion are to be complied with.
(2) With respect to the requirements on stability, the following requirements are to be complied with:
   (a) In the case of a conversion to a double hull oil tanker, **3.2.2, Part 3 of Rules for Marine**

Pollution Prevention Systems is to still be applied.

(b) In the case of a conversion to a bulk carrier, **(5)** is to be applied.

(3) The requirements on protective coating in seawater ballast tank, etc. specified in ~~**25.2.2-1**~~**3.3.5.3-1, Part 1, Part C of the Rules** are not required to be complied with, except in cases where the entire internal structure of the seawater ballast tank is newly made. However, the requirements specified in ~~**25.2.2-2**~~**3.3.5.3-2, Part 1, Part C of the Rules** are to be applied.

(4) The requirements on towing and mooring equipment specified in ~~**27.2**~~**14.4, Part 1, Part C of the Rules** are to be applied.

(5) In the case of conversion to a bulk carrier, the requirements specified in ~~**31A and 34.2**~~**3.8.2.3, Part 1** and **Annex 1.1, Part 2-2, Part C of the Rules** are to be applied. However, the requirements on permanent means of access are to comply with **(6)**.

((6) to (10) are omitted.)

(11) The requirements specified in ~~**18.3, 19.2.3, Chapter 20, 23.1, 23.2, 23.4, 23.5, 23.6, 23.7, 27.1.7** and **34.1.1-1, Part C**~~**3.8.1.1-1, 11.3.2.6, 11.3.3.3, 14.3.1.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12** and **14.13, Part 1, Part C of the Rules and 13.4 and 13.6, Part D of the Rules** are to be applied when structures or equipment are newly added, replaced or modified.

B3 ANNUAL SURVEYS

B3.2 Annual Surveys for Hull, Equipment, Fire Extinction and Fittings

B3.2.1 Examination of Plans and Documents

Sub-paragraph -1 has been amended as follows.

1 The wording "For ships required to have a damage control plan on board in accordance with the requirements in ~~**Chapter 33**~~**2.3.4, Part 1, Part C**" in **Table B3.1, Part B of the Rules** refer to the ships specified in the following **(1)** and **(2)**.

(1) Dry cargo ships of 500 *gross tonnage* and above engaged on international voyages, which were at the beginning stage of construction on or after 1 February 1992. Dry cargo ship is defined as a cargo ship that does not engage in carrying liquids.

(2) Cargo ships of 500 *gross tonnage* and above engaged on international voyages, which were at the beginning stage of construction on or after 1 January 2009

B3.2.2 General Examination

Sub-paragraph -5 has been amended as follows.

5 The general examination of "bow doors, inner doors, side shell doors and stern doors (hereinafter collectively referred to as "door(s)")" stipulated in item 21 of **Table B3.2, Part B of the Rules** is to confirm that the items specified **(1)** to **(7)** below are in good condition. Non-destructive testing may be required when deemed necessary by the Surveyor as a consequence of the examination specified in **Table 3.2, Part B of the Rules**.

(1) Structural members such as plating and stiffeners and related welded parts of the door(s)

(2) Structural members such as plating and stiffeners of the surrounding hull structure

(3) Items **(a)** to **(h)** below for the door(s)

(a) Securing, supporting and locking devices

(b) Hinges, bearings and thrust bearings
(c) Interlock systems for opening/closing systems and the securing and locking devices
(d) Sealing arrangements
(e) Electric devices for operating
(f) Drainage systems and arrangements
(g) Hydraulic devices
(h) Any other devices which are required for the ship in accordance with ~~**Chapter 23,**~~ **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules**

(4) (Omitted)

(5) Items **(a)** to **(f)** below for indication / monitoring systems, where fitted.
(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel
(b) Lamp test function at the navigation bridge panel and on the operating panel
(c) Mode selecting function that allows selection between "harbour" and "sea voyage"
(d) Power supply for the indication and alarm system
(e) Sensor for the indication and alarm system
(f) Any other systems which are required for the ship in accordance with ~~**Chapter 23**~~ **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules**

((6) and (7) are omitted.)

B3.2.3 Performance Tests

Sub-paragraphs -6 and -7 have been amended as follows.

6 Inspection of Water Level Detection and Alarm Systems (refer to **13.8.5, Part D of the Rules, 13.8.6, Part D of the Rules** and **B1.1.3-9(5)**) specified in item 9 of **Table B3.3, Part B of the Rules,** is to be carried out on the items installed on the following ships.

(1) Cargo ships of 500 *gross tonnage* and above engaged on international voyages, which have a single cargo hold below the freeboard deck or cargo holds below the freeboard deck which are not separated by at least one bulkhead made watertight up to that deck and specified in the following **(a)** or **(b)**:
(a) Cargo ships having a length (L_f) of less than 100 *m*, which had been at the beginning stage of construction before 1 July 1998
(b) Cargo ships having a length (L_f) of less than 80 *m*, which had been at the beginning stage of construction on and after 1 July 1998

(2) Cargo ships of 500 *gross tonnage* and above engaged on international voyages and specified in the following **(a)** or **(b)**:
(a) Bulk carriers defined in **1.3.1(13)**, **Part B of the Rules**, which had been at the beginning stage of construction before 1 July 2006
(b) Bulk carriers defined in ~~**31A.1.2-1(1),**~~ **An1.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules**, which had been at the beginning stage of construction on or after 1 July 2006

7 Inspection of Dewatering Arrangements (refer to **13.5.10**, **Part D of the Rules**) specified in item 10 of **Table B3.3**, **Part B of the Rules**, is to be carried out on the items installed on the following ships.

(1) Cargo ships of 500 *gross tonnage* and above engaged on international voyages and specified in the following **(a)** or **(b)**:
(a) Bulk carriers defined in **1.3.1(13)**, **Part B of the Rules**, which had been at the beginning stage of construction before 1 July 2006
(b) Bulk carriers defined in ~~**31A.1.2-1(1),**~~ **An1.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules**, which had been at the beginning stage of construction on or after 1 July 2006

B5 SPECIAL SURVEYS

B5.2 Special Surveys for Hull, Equipment, Fire Extinction and Fittings

B5.2.3 Performance Test

Sub-paragraph -4(4) has been amended as follows.

4 The performance test specified in **5.2.3-2(10), Part B of the Rules** is to be in accordance with the following:
((1) to (3) are omitted.)
(4) Following satisfactory completion of the applicable test without permanent deformation or damage to the tested item, the load used for that test is to be marked as the maximum operational load on the plate specified in ~~**C23.8.1-2(6), Part C of the Guidance**~~**14.14.1.1-2(6), Part 1, Part C of the Rules**.

Table B5.2.6-1 has been amended as follows.

Table B5.2.6-1

Ship's length for freeboard L_f (m)	Hull section modulus			
	Applied rule			
	1964 version to 1972 version (except ships complying with "*fdB*")		1973 version to 1986 version	1987 version and later
	Oil tanker	Other ships		
$L_f \leq 60$	As stipulated in rule requirements	As stipulated in rule requirements	80% of rule requirements (77% for oil tankers and ships carrying dangerous chemicals in bulk)	80% of rule requirements
$60 < L_f < 130$			To be determined by interpolation	To be determined by interpolation
$L_f \geq 130$	As stipulated in rule requirements or 0.9~~W_{min}~~ ~~$\times k$~~$Z_{gr\_min} \times K$, whichever is greater where: ~~W_{min}~~Z_{gr_min}: Hull section modulus specified in **~~15.2.1-2,~~ 5.2.1.3-1, Part 1, Part C of the Rules** ~~k~~K: Material factor specified in **~~1.1.7-2,~~ 3.2.1.2-2, Part 1, Part C of the Rules**		90% of rule requirements (87% for oil tankers and ships carrying dangerous chemicals in bulk)	90% of rule requirements

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2023.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to the following ships:

(1) ships for which the date of contract for construction is before the effective date; or

(2) sister ships of ships subject to the current requirements for which the date of contract for construction is before 1 January 2025.

Amendment 1-4

B8 has been added as follows.

B8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

8.1 General

8.1.2 Preventive Maintenance System of Shafts

1 The wording “borescope camera” in **8.1.2-2(2), Part B of the Rules** is to be capable of conducting inspections with clear images of 300,000 pixels or more and is to be equipped with a recording function.

2 The wording “Remote monitoring devices for weardown of shaft deemed appropriate by the Society” in **8.1.2-2(7), Part B of the Rules** means devices approved by the Society in accordance with **Chapter 1, Part 7 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.

3 The wording “redundancy” in **8.1.2-2(7), Part B of the Rules** may be provided by having at least one set of spare sensors in cases where the design allows sensors to be replaced without drawing out the shafts and propellers.

4 The wording “Grounding devices” in **8.1.2-2(9), Part B of the Rules** for slip rings and brushes are recommended to be made of silver alloy and silver-graphite combinations, respectively.

5 The wording “grounding condition monitoring devices” in **8.1.2-2(9), Part B of the Rules** are to be capable of indicating values for voltage, current or resistance.

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2023.