RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part B Class Surveys

2020 AMENDMENT NO.1

Rule No.47 30 June 2020

Resolved by Technical Committee on 22 January 2020

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

Rule No.47 30 June 2020
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

1.1 Surveys

1.1.3 Intervals of Class Maintenance Surveys*

Sub-paragraph -4 has been amended as follows.

4 The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the ship by survey is deemed necessary in cases where the Society ~~suspects the ship of not being in continued compliance with the Rules and Regulations of the Society, and of not being properly maintained and operated by the ship owner~~ considers the ship to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2020.

Amendment 1-2

Chapter 1 GENERAL

1.1 Surveys

1.1.3 Intervals of Class Maintenance Surveys*

Sub-paragraph -2 has been amended as follows.

2 Planned Machinery Surveys are to be carried out as specified below in **(1)** to **(3)**. In the case of azimuth thrusters, however, the surveys for gears, gear shafts, shaft couplings, bearings and clutches for propulsion as well as azimuth steering gears may be carried out concurrently with the survey specified in **-1(6)** above.

(1) In the Continuous Machinery Survey, each survey item or part is to be examined at the interval not exceeding 5 *years*.

(2) In the Planned Machinery Maintenance Scheme, each survey item or part is to be examined according to the survey schedule table specified in **9.1.3** and at the general examination (including review of maintenance records) which is to be carried out every year.

(3) In the Condition Based Maintenance Scheme, each survey item or part is to be examined according to the survey schedule table specified in **9.1.4** and at the annual survey.

1.2 Specialized Ships, Installations, and Apparatus

Paragraphs 1.2.3 and 1.2.4 have been deleted.

~~**1.2.3 Surveys of Water Jet Propulsion Systems, etc.***~~

~~Surveys of water jet propulsion systems and azimuth thrusters are to be carried out as specified separately by the Society.~~

~~**1.2.4 Surveys of Selective Catalytic Reduction (SCR) Systems, etc.***~~

~~Surveys of selective catalytic reduction (SCR) systems, exhaust gas recirculation (EGR) systems or exhaust gas cleaning systems (EGCS) are to be carried out as specified separately by the Society.~~

1.4 Preparation for Survey and Other Items

1.4.4 Disposition when Repairs are Considered Necessary as a Result of Surveys*

Sub-paragraph -4 has been amended as follows.

4 Where the damage found on the structure is isolated and of a localized nature which does not affect the ship's structural integrity (as for example a minor hole in a cross-deck strip), consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity after evaluation of the surrounding structure and impose an associated ~~outstanding recommendation~~ Condition with a specific time limit in order to complete the permanent repair and retain classification.

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.6 Documents to be Maintained On Board*

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

1 At the completion of a classification survey, the Surveyor confirms that the finished versions of the following applicable drawings, plans, manuals, lists, etc., are on board.
((1) is omitted.)
(2) Other documents
((a) to (v) are omitted.)
(w) Instructions and operation manuals (including cautionary notes for the safety of the operators) for the following equipment when fitted on the ship: selective catalytic reduction systems and associated equipment; exhaust gas cleaning systems and associated equipment; or exhaust gas recirculation systems and associated equipment.
((3) is omitted.)

Chapter 3 ANNUAL SURVEYS

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

3.2.3 Performance Tests*

At Annual Surveys, performance tests listed in **Table B3.3** are to be carried out.

Table B3.3 has been amended as follows.

Table B3.3 Performance Tests

Items	Tests
(Omitted)	
13 Special arrangements for carrying dangerous goods	・ Checking, when appropriate, whether the water supply, bilge pumping and any water spray system work in good order is to be carried out.
14 Portable gas detectors for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo	・ Checking whether the detectors work in good order is to be carried out.

3.3 Annual Surveys for Machinery

3.3.1 General Examinations*

Sub-paragraph -1(4) 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) and (2) are omitted.)

(3) For ships affixed with the notation "*PSCM*" or "*PSCM・A*", 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.

Paragraph 3.3.3 has been amended as follows.

3.3.3 Alternative Design and Arrangements

For ships subject to *SOLAS Chapter II-1 Regulation 55*, alternative design and arrangements for machinery, ~~or~~ electrical installations, or low-flashpoint fuel storage and distribution systems are to be examined in accordance with the test, inspection and maintenance requirements, if any, specified in the relevant approval documents.

Paragraphs 3.3.4 and 3.3.5 have been added as follows.

3.3.4 Surveys of Water Jet Propulsion Systems, etc.

1 For ships fitted with water jet propulsion systems, the surveys are to be carried out in accordance with the following **(1)** and **(2)**:

(1) The general conditions of propulsion systems are to be confirmed to be in good order.

(2) The following **(a)** to **(d)** tests are to be carried out:

(a) Performance tests of steering systems;

(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 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;

(d) Specific tests for the supply of the alternative sources of power for propulsion systems.

2 For ships fitted with azimuth thrusters, the surveys are to be carried out in accordance with the following **(1)** and **(2)**:

(1) The general conditions of propulsion systems are to be confirmed to be in good order.

(2) The following **(a)** to **(e)** tests are to be carried out:

(a) Performance tests of azimuth steering gears;

(b) 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;

(c) 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;

(d) Specific tests for the supply of the alternative sources of power for propulsion systems;

(e) For azimuth thrusters which incorporate electric motors in propeller pods, performance tests of the following are to be carried out:

i) Audible and visual alarms for ingress of sea water into propeller pods;

ii) Fire detection and alarm systems in propeller pods (if provided);

iii) Cooling fans and auxiliary cooling fans for propulsion motors (if provided);
iv) Control means for stopping cooling fans for propulsion motors and closing any inlets and outlets of air for such fans (if provided).

(3) Ships where vibration measurement systems or Fe-density measurement systems are used instead of the temperature sensors and temperature recorders, in the case of azimuth thrusters which use roller bearings as the bearings for propeller shafts Kind 1*C*, are to comply with the requirements specified in the following **(a)** and **(b)**.

(a) For the analysis records with the data submitted by the executive management (hereinafter referred to as "management" in **(3)**), it is to be confirmed that the records have been evaluated by Society before the survey and retained on board. In the results, the management's opinion, such as on the necessity for withdrawing the azimuth thrusters, is to be included.

(b) It is to be confirmed that lubricating oil sampling and analysis specified in **8.1.3(1)(a)** to be carried out regularly.

3.3.5 Surveys of Selective Catalytic Reduction (SCR) Systems, etc.

1 For ships fitted with selective catalytic reduction (SCR) systems, the surveys are to be carried out in accordance with the following **(1)** to **(5)**:

(1) The general conditions of SCR systems are to be confirmed to be in good order.

(2) General examinations of ventilation systems for reductant agent storage tank compartments are to be carried out.

(3) General examinations of specific safety and protective equipment for SCR systems are to be carried out.

(4) Instructions and operation manuals of SCR systems are to be confirmed to be kept on board.

(5) Performance tests of the following **(a)** to **(f)** are to be carried out:

(a) Control, safety and alarm devices;
(b) Change-over devices of exhaust gas pipes and their corresponding indicators;
(c) Remote shut-off devices for reductant agent storage tank valves;
(d) Remote stopping devices for reductant agent supply pumps;
(e) Safety showers; and
(f) Eyewashers.

2 For ships fitted with exhaust gas cleaning systems, the surveys are to be carried out in accordance with the following **(1)** to **(4)**:

(1) The general conditions of exhaust gas cleaning systems are to be confirmed to be in good order.

(2) General examinations of safety and protective equipment for exhaust gas cleaning systems.

(3) Instructions and operation manuals of exhaust gas cleaning systems are to be confirmed to be kept on board.

(4) Performance tests of the following **(a)** to **(f)** are to be carried out:

(a) Control, safety and alarm devices;
(b) Change-over devices of exhaust gas pipes and their corresponding indicators;
(c) Remote shut-off devices of cocks or valves directly fitted to sodium hydroxide solution storage tanks (if fitted);
(d) Remote stopping devices for sodium hydroxide solution supply pumps (if fitted);
(e) Safety showers (if fitted); and
(f) Eyewashers (if fitted).

3 For ships fitted with exhaust gas recirculation systems, the surveys specified in **-2** above are to be carried out (in this case the term "exhaust gas cleaning systems" is to be read as "exhaust gas recirculation systems").

Table B3.7 has been amended as follows.

Table B3.7 Performance Tests at Annual Surveys

Items	Examinations
1 Valves for oil tanks	(Omitted)
2 Fuel oil pumps, cargo pumps, ventilating fans and boiler draught fans	(Omitted)
3 Emergency electrical power source	(Omitted)
4 Communication systems	(Omitted)
5 Steering gears	(Omitted)
6 Bilge systems	(Omitted)
7 Safety devices	Operation tests for the safety devices, etc. specified in the following **(a)** to **(e)** are to be carried out. However, the tests may be omitted at the Surveyor's discretion based on the general examination, reports of working conditions at sea and inspection records taken by the ship's crew.
(a) Main propulsion machinery and auxiliary machinery	Operation tests of the following safety/alarm devices on prime movers of main propulsion machinery; electric generators; auxiliary machinery essential for propulsion; and auxiliary machinery for manoeuvring and crew safety are to be carried out. Where deemed necessary by the Surveyor, the maintenance records of the cooling water and lubricating oil are required to be presented for review. (i) Overspeed protective devices (ii) Automatic shut-off and alarm devices in case of loss or low pressure of the lubricating oil (iii) Automatic shut-off devices in case of abnormally low pressure of the main condenser vacuum for ~~main~~ steam turbines used as main propulsion machinery
(b) Boilers, thermal oil heaters, incinerators and gas combustion units (*GCU*s)	(Omitted)
(c) Monitoring devices	(Omitted)
(d) Automatic control devices or remote control devices	(Omitted)
(e) Engineer's Alarm	(Omitted)

3.4 Special Requirements for Ships Carrying Liquefied Gases in Bulk

3.4.2 Examinations*

At Annual Surveys for ships carrying liquefied gases in bulk, structures and equipment of the spaces specified in **Table B3.9** are to be generally examined in order to ascertain them being in good order. The extent of the survey may be increased to include performance tests, operation tests, open-up examinations, where deemed necessary by the Surveyor.

Table B3.9 has been amended as follows.

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

Items	Examinations
(Omitted)	
3 Cargo handling system	The general condition of the equipment shown in (a) to (c) below is to be examined during operation, as far as is practical. Regarding (c), operation tests are also to be carried out. (a) Machinery for cargo handling including cargo heat exchangers, vaporizers, pumps and compressors. (b) Piping and its insulation for cargo handling system as far as accessible (c) ESD (~~E~~emergency shutdown) systems for stopping cargo flow (performance tests are to be carried by manually activating emergency shutdown systems and confirming that cargo pumps and compressors automatically stop as a result.)
4 Gauging, detecting, safety, and alarming devices	General examinations and performance tests of the following (a) to (i) are to be carried out. Where tests under actual conditions are difficult, simulation tests or other suitable means may be used to confirm functionality. (a) Liquid level gauges, high level alarms and valves associated with shut-off system (b) Liquid level indicators and overflow control for the cargo tanks (c) Temperature indication equipment and associated alarms (d) Pressure gauges, high pressure and, when applicable, low pressure alarms, for the cargo tanks (e) Pressure gauges and associated alarms for cargo tanks, interbarrier spaces and hold spaces (f) Arrangements for the cargo pressure/temperature control including, when fitted, any thermal oxidation systems, any refrigeration systems, and any associated safety measures and alarms (g) Fixed and portable gas detecting instruments and associated alarms (h) Gauging devices for oxygen density (i) Safety devices of the arrangements for the use of cargo as fuel
(Omitted)	
6 Fire extinguishing arrangement	In addition to the general examinations for arrangements for fire protection and fire extinction specified in **Chapter 11, Part N,** general examinations and operation tests for the following are to be carried out: (a) Proper operation of the remote means of starting one main fire pump is to be confirmed. (b) ~~The water spray system, the dry chemical powder fire extinguishing system, the fixed firefighting system for the cargo pump room, the fixed installation for the hazardous area are to be examined.~~ The fixed fire-fighting systems for enclosed cargo machinery spaces and enclosed cargo motor rooms located within cargo areas are to be examined. (c) The water spray system for cooling, fire protection and crew protection is to be examined. (d) The dry chemical powder fire-extinguishing system for the cargo area is to be examined. (e) The appropriate fire-extinguishing systems for the enclosed cargo machinery spaces for ships that are dedicated to the carriage of a restricted number of cargoes and the internal water spray systems for the turret compartments are to be examined. (~~e~~f) It is to be confirmed that means of operation for arrangements specified in (b) to (e) are clearly marked. (~~f~~g) Additional firefighters' outfits provided for flammable cargoes are to be examined. (~~g~~h) Alarm devices for emergency escapes are to be examined.
(Omitted)	
9 Miscellaneous	The general condition of the equipment shown in (a) to (~~o~~p) is to be examined. The contents of items (j) and (k) are to be checked and confirmation that they are kept on board is to be made. Regarding the arrangements for ventilation systems of spaces in the cargo area specified in (c), operation tests are to be carried out. ((a) to (l) are omitted) (m) Gas detection arrangements for cargo control rooms and the measures taken to exclude ignition sources where such spaces are ~~not gas-safe~~ classified as hazardous areas (n) The bilge, ballast and oil fuel arrangements specified in **3.7, Part N** (o) The wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends in the cargo area (p) Cargo machinery spaces and turret compartments, including their escape routes

Chapter 4 INTERMEDIATE SURVEYS

4.2 Intermediate Surveys for Hull, Equipment, Fire Extinction and Fittings

Paragraph 4.2.8 has been added as follows.

4.2.8 Alternative Design and Arrangements

For ships subject to *SOLAS Chapter II-2 Regulation 17*, alternative design and arrangements for fire safety are to be examined in accordance with the test, inspection and maintenance requirements, if any, specified in the relevant approval documents.

4.3 Intermediate Surveys for Machinery

Paragraph 4.3.3 has been added as follows.

4.3.3 Alternative Design and Arrangements

For ships subject to *SOLAS Chapter II-1 Regulation 55*, alternative design and arrangements for machinery, or electrical installations, or low-flashpoint fuel storage and distribution systems are to be examined in accordance with the test, inspection and maintenance requirements, if any, specified in the relevant approval documents.

Paragraphs 4.3.4 and 4.3.5 have been added as follows.

4.3.4 Surveys of Water Jet Propulsion Systems, etc.

For ships fitted with water jet propulsion systems or azimuth thrusters, the surveys are to be carried out in accordance with **3.3.4-1** and **-2** respectively.

4.3.5 Surveys of Selective Catalytic Reduction (SCR) Systems, etc.

For ships fitted with selective catalytic reduction (SCR) systems, exhaust gas cleaning systems or exhaust gas recirculation systems, the surveys are to be carried out in accordance with **3.3.5-1**, **-2** and **-3** respectively.

Chapter 5 SPECIAL SURVEYS

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

Paragraph 5.2.8 has been added as follows.

5.2.8 Alternative Design and Arrangements

For ships subject to *SOLAS Chapter II-2 Regulation 17*, alternative design and arrangements for fire safety are to be examined in accordance with the test, inspection and maintenance requirements, if any, specified in the relevant approval documents.

5.3 Special Surveys for Machinery

Paragraph 5.3.3 has been added as follows.

5.3.3 Alternative Design and Arrangements

For ships subject to *SOLAS Chapter II-1 Regulation 55*, alternative design and arrangements

for machinery, or electrical installations, or low-flashpoint fuel storage and distribution systems are to be examined in accordance with the test, inspection and maintenance requirements, if any, specified in the relevant approval documents.

Paragraphs 5.3.4 and 5.3.5 have been added as follows.

5.3.4 Surveys of Water Jet Propulsion Systems, etc.

1 For ships fitted with water jet propulsion systems, in addition to the surveys specified in **3.3.4-1**, the surveys are to be carried out in accordance with the following **(1)** to **(5)**:

(1) Waterjet pump units are to be opened up and it is to be confirmed that their principal components are in good working order;

(2) Shafting bearings are to be opened up and the following tests are to be carried out:
  (a) The principal components of shafting are to be confirmed to be in good order;
  (b) Non-destructive tests of the contact faces of impeller bosses and main shafts (keyways and flanges), and coupling bolts are to be carried out;

(3) Holding parts and pins of deflectors or reversers are to be opened up and it is to be confirmed that they are in good working order;

(4) Oil piping for lubrication is to be examined; and

(5) Sea water piping for lubrication is to be examined.

2 For ships fitted with azimuth thrusters, in addition to the surveys specified in **3.3.4-2**, inspections of the supporting parts of azimuth steering gear are to be carried out.

5.3.5 Surveys of Selective Catalytic Reduction (SCR) Systems, etc.

1 For ships fitted with selective catalytic reduction (SCR) systems, in addition to the surveys specified in **3.3.5-1**, the surveys are to be carried out in accordance with the following **(1)** to **(3)**:

(1) Internal examinations of reductant agent storage tanks are to be carried out.

(2) In cases where reductant agents are carried in tanks which form part of the ship hull, the pressure tests required for "cargo tank" in **Table B5.23-1** are to be carried out. In cases where pressure tests at specified pressures have been conducted in the presence of the Master or any other representative personnel of the ship at suitable occasions prior to the survey, such pressure tests may be regarded as the pressure tests required for Special Surveys.

(3) The following **(a)** to **(c)** equipment is to be opened for examinations:
  (a) SCR chambers;
  (b) Reductant agent supply pumps;
  (c) Other items as deemed necessary by the Society.

2 For ships fitted with exhaust gas cleaning systems, in addition to the surveys specified in **3.3.5-2**, the surveys are to be carried out in accordance with the following **(1)** to **(3)**:

(1) Internal examinations of sodium hydroxide solution storage tanks (if fitted).

(2) In cases where sodium hydroxide solutions are carried in tanks which form part of the ship hull, the pressure tests required for "cargo tank" in **Table B5.23-1** are to be carried out. In cases where pressure tests at specified pressures have been conducted in the presence of the Master or any other representative personnel of the ship at suitable occasions prior to the survey, such pressure tests may be regarded as the pressure tests required for Special Surveys.

(3) The following **(a)** and **(b)** equipment is to be opened for examinations:
  (a) Sodium hydroxide solution supply pumps and washwater supply pumps (if fitted);
  (b) Other items as deemed necessary by the Society.

3 For ships fitted with exhaust gas recirculation systems, in addition to the surveys specified in **3.3.5-3**, the surveys specified in **-2** above are to be carried out (in this case the term "exhaust gas cleaning systems" is to be read as "exhaust gas recirculation systems").

Table B5.25 has been amended as follows.

Table B5.25 Additional Requirements at Special Surveys for Machinery

Items	Examinations
1 ~~Diesel~~ Reciprocating internal combustion engines (main propulsion machinery and auxiliary machinery for propulsion, manoeuvring and personnel safety)	(a) The essential part of the crankcase and cylinder jacket, the foundation bolts, the chock liners and the tie rod bolts are to be generally examined. (b) The doors of the crankcase and the explosion relief devices of the crankcase and scavenge space are to be generally examined. (c) The anti-vibration dampers, detuners, balancers, and compensators are to be generally examined. (d) The crankshaft alignment is to be checked and if necessary, adjusted.
(Omitted)	

Chapter 6 DOCKING SURVEYS

6.1 Docking Surveys

Paragraph 6.1.1 has been amended as follows.

6.1.1 Surveys in Dry Dock or on Slipway*

1 At Docking Surveys, examinations listed in **Table B6.1** are to be carried out in the dry dock or on the slipway after cleaning the outer shell.

2 For ships fitted water jet propulsion systems, the surveys are to be carried out in accordance with the following **(1)** to **(3)**:

(1) In cases where water-lubricated bearings for waterjet pump units are adopted, bearing wear down is to be measured;

(2) The mounting of waterjet pump units to hull structures (including flanges and bolts) is to be examined;

(3) Water intake ducts are to be confirmed to be in good working order.

3 For ships fitted with azimuth thrusters, the surveys are to be carried out in accordance with the following **(1)** and **(2)**:

(1) Visual inspections of steering columns, propeller pods and propellers (including bolt locking and other fastening arrangements) are to be carried out;

(2) Examinations on sealing devices for azimuth steering gears, propeller shafts and propeller blades are to be carried out.

Table B6.1 has been amended as follows.

Table B6.1 Requirements for Docking Surveys

Items	Examinations
(Omitted)	
4 Bush of stern tube bearing or shaft bracket bearing	・The wear down of the bearing or the clearance between the propeller shaft (Except in the case of azimuth thrusters which use roller bearings as the bearings for propeller shafts) or stern tube shaft, and the bearing is to be measured and recorded.
5 Sealing devices for stern tube and shaft bracket bearing	・In the case of oil or freshwater lubricated stern tube bearings, the efficiency of the oil or freshwater gland is to be checked.
6 Propeller	・Propellers are to be examined. Where a controllable pitch propeller is fitted, the pitch control device is to be examined without dismantling.
(Omitted)	

6.1.2 In-water Surveys*

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

1 In-water Surveys may be accepted in lieu of Surveys in the dry dock or on the slipway subject to prior approval by the Society. In any case, Surveys in the dry dock or on the slipway to be carried out at the times specified in **(1)** or **(2)** are not to be replaced with In-water Surveys.

(1) Docking Surveys carried out at the times specified in **1.1.3-1(4)(a)** for the general dry cargo ships defined in **1.3.1(15)**, for the ships carrying liquefied gases in bulk defined in **1.3.1(17)** and for ships with the class notation "*Enhanced Survey Programme*" (abbreviated to *ESP*)

（(2) is omitted.）

Paragraph 6.1.3 has been amended as follows.

6.1.3 Other Surveys*

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

2 For ships other than those referred to in **-1** 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 the following **-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.

3 Ships where vibration measurement systems or Fe-density measurement systems are used instead of temperature sensors and temperature recorders, in the case of azimuth thrusters which use roller bearings as the bearings of propeller shaft Kind 1*C*, are to comply with the requirements specified in the following **(1)** and **(2)**.

(1) For the analysis records with the data submitted by the executive management (hereinafter referred to as "management" in **-3**), it is to be confirmed that the records have been evaluated by Society before the survey and retained on board. In the results, management opinion, such as on the necessity for withdrawing the azimuth thrusters, is to be included.

(2) It is to be confirmed that lubricating oil sampling and analysis specified in **8.1.3(1)(a)** to be carried out regularly.

Chapter 8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

8.1 Propeller Shaft and Stern Tube Shaft Surveys

8.1.3 Preventive Maintenance System*

Sub-paragraphs (1) and (2) have been amended as follows.

Notwithstanding the requirements in **8.1.1** above, where the ship is equipped with oil lubricated stern tube bearings and appropriate stern tube oil sealing devices as approved by the Society, the survey items of 1, 3, 4, 5 and 7 in **Table B8.1** may be replaced with a general examination of the shafting system and, for the weardown measuring and recording specified in item 8 in **Table B8.1**, they may be carried out while the propeller is installed in lieu of the timing after re-installation; this, however, is provided that all condition monitoring data taken according to the approved preventive maintenance system is found to be within permissible limits. Furthermore, omission of the survey items of 2, 9 and 10 in **Table B8.1** may be allowed except in the case of keyed connections.

(1) Based upon Society approved preventive maintenance systems, at least the following **(a)** to **(d)** are to be properly monitored and recorded for diagnosing lubricating conditions of shafting systems and performing preventive system maintenance. Moreover, the notation "*Propeller Shaft Condition Monitoring System*" (abbreviated as "*PSCM"*) is to be affixed to the classification characters of ships whose preventive maintenance systems are approved by the Society.

((a) and (b) are omitted.)

(c) Bearing temperature. In the case of azimuth thrusters which use roller bearings as the bearings for propeller shafts, however, vibrations of the power transmission systems in the propulsion systems or the Fe-density of the lubricating oil in the azimuth thruster casings may be acceptable.

((d) is omitted.)

(2) Based upon Society approved preventive maintenance systems, at least the following **(a)** to **(e)** are to be properly monitored and recorded for diagnosing lubricating conditions of shafting systems and performing preventive system maintenance. Moreover, the notation "*Propeller Shaft Condition Monitoring System・A*" (abbreviated as "*PSCM・A"*) is to be affixed to the classification characters of ships whose preventive maintenance systems are approved by the Society.

((a) to (c) are omitted.)

(d) Bearing temperature. In the cases of azimuth thrusters which use roller bearings as the bearings for propeller shafts, however, the vibrations of the power transmission systems in the propulsion systems or the Fe-density of the lubricating oil in the azimuth thruster casings may be acceptable.

((e) is omitted.)

Chapter 9 PLANNED MACHINERY SURVEYS

9.1 Planned Machinery Surveys

Table B9.1 has been amended as follows.

Table B9.1 Open-up Surveys of Machinery and Equipment

Items	Examinations
1 ~~Diesel~~ Reciprocating internal combustion engines (main engine)	(Omitted)
2 Steam turbines (main engine)	(Omitted)
3 Power transmission systems and shafting systems (except for those for which item 6 is applicable)	・Reduction gears, reversing gears and clutch gears are to be opened up to the Surveyor's satisfaction, and the gears, shafts, bearings and couplings are to be examined. ・The essential parts of flexible couplings are to be opened up. ・Thrust shafts, intermediate shafts and their bearings (excluding stern tube bearings and shaft bracket bearings) are to be examined by removing the upper bearing halves or their bearing metals and thrust pads and turning the shaft. ・The essential parts of other power transmission gears are to be subjected to open-up examinations to the Surveyor's satisfaction.
4 Auxiliary engines	Auxiliary engines driving generators (including emergency generators), auxiliary machinery essential for main propulsion and auxiliary machinery for manoeuvring and personnel safety are to be handled in accordance with the requirements applicable to main engines.
5 Water jet propulsion systems	・Hydraulic pumps for steering actuating systems are to be opened up. ・Lubricating oil pumps are to be opened up. ・Coolers are to be opened up. ・Other items considered to be necessary by the Society are to be opened up.
6 Azimuth thrusters	・For gears, gear shafts, shaft couplings, bearings and clutches for propulsion, these items are to be opened up as deemed necessary by the Surveyor so that they can be inspected. However, this may be carried out concurrently with the surveys specified in **Chapter 8**. ・For gears, gear shafts, shaft couplings and bearings for steering, these items are to be opened up as deemed necessary by the Surveyor so that they can be inspected. However, this may be carried out concurrently with the surveys specified in **Chapter 8**. ・Hydraulic pumps and hydraulic motors for azimuth steering gears are to be opened up. ・Lubricating oil pumps are to be opened up. ・Coolers are to be opened up. ・Other items considered to be necessary by the Society are to be opened up.
~~5~~7 Auxiliary machinery (except for those for which item 5 or 6 is applicable)	(Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2020.

Amendment 1-3

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.2 Submission of Plans and Documents for Approval*

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

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) is omitted.)
(2) Machinery
((a) to (g) are omitted.)
(h) Waterjet propulsion systems (if fitted):
Plans and data specified in **19.1.3, Part D**
(i) Azimuth thrusters (if fitted):
Plans and data specified in **20.1.3, Part D**
(j) Selective catalytic reduction systems and associated equipment (if fitted):
Plans and data specified in **21.1.3(1), Part D**
(k) Exhaust gas cleaning systems and associated equipment (if fitted):
Plans and data specified in **22.1.3(1), Part D**
(l) Exhaust gas recirculation systems and associated equipment (if fitted):
Plans and data specified in **23.1.3(1), Part D**
(~~h~~m) Spare parts:
List of spare parts specified in **2~~1~~4.1.2, Part D**
(~~i~~n) Electrical installations
Plans and data specified in **1.1.6, Part H**
((3) to (7) are omitted.)

2.1.3 Submission of Other Plans and Documents

Sub-paragraph -1(7) has 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 (6) are omitted.)
(7) The following plans and documents related to machinery:
((a) to (d) are omitted.)
(e) Selective catalytic reduction systems and associated equipment (if fitted):
Plans and data specified in **21.1.3(2), Part D**
(f) Exhaust gas cleaning systems and associated equipment (if fitted):
Plans and data specified in **22.1.3(2), Part D**
(g) Exhaust gas recirculation systems and associated equipment (if fitted):
Plans and data specified in **23.1.3(2), Part D**
((8) to (15) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Rules, the current requirements apply to waterjet propulsion systems, azimuth thrusters, SCR systems, EGCS or EGR systems whose applications for approval are submitted to the Society before the effective date installed on ships for which the date of contract for construction is before the effective date.

Amendment 1-4

Chapter 2 CLASSIFICATION SURVEYS

2.3 Sea Trials and Stability Experiments

2.3.1 Sea Trials*

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

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) and (2) are omitted.)
(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.
((4) to (13) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2020.
2. Notwithstanding the amendments to the Rules, the current requirements apply to waterjet propulsion systems or azimuth thrusters whose applications for approval are submitted to the Society before the effective date installed on ships for which the date of contract for construction is before the effective date.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part B Class Surveys

2020 AMENDMENT NO.1

Notice No.26 30 June 2020

Resolved by Technical Committee on 22 January 2020

Notice No.26 30 June 2020
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

B2 CLASSIFICATION SURVEYS

B2.3 Sea Trials and Stability Experiments

B2.3.1 Sea Trials

Sub-paragraph -5(6) has been amended as follows.

5 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) to (5) are omitted.)
(6) Governor tests
For engines for main sources of electrical power (including engines driving generators for both propulsion and main power supply), the characteristics for governors specified in ~~**2.4.2-1**~~**2.4.1-5(1), Part ~~H~~D of the Rules** are to be confirmed.
((7) to (10) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2020.
2. Notwithstanding the amendments to the Guidance, the current requirements apply to governors for which the application for approval is submitted to the Society before the effective date.

Amendment 1-2

B3 ANNUAL SURVEYS

B3.3 Annual Surveys for Machinery

B3.3.1 General Examinations

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

3 In general examinations specified in **3.3.1-1, Part B of the Rules**, for ships where harmonic filters are installed on the main busbars of electrical distribution systems, except in cases where the filters are installed for single application frequency drives such as pump motors, it is to be ascertained that the harmonic filters are placed in good order and either of the following **(1)** or **(2)** is to be verified.

(1) For ships fitted with facilities to continuously monitor the Total Harmonic Distortion (THD) values experienced by the main busbars as specified in **2.~~12.4-1~~3.13-1, Part H of the Rules**, records of THD values are to be verified.

(2) (Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 June 2020.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction is before the effective date.

Amendment 1-3

B1 GENERAL

B1.1 Surveys

B1.1.3 Intervals of Class Maintenance Surveys

Sub-paragraph -12 has been added as follows.

12 With respect to the wording "whenever the survey is considered necessary by the Society" in **1.1.3-3(6), Part B of the Rules** means, for example, a case where abnormal conditions are observed from the measurement data of vibration measurement system or Fe-density measurement system used instead of the temperature sensors and the temperature recorder of the azimuth thrusters which adopts roller bearings for propeller shafts bearings. In this case, abnormal conditions are to be reported to the Society immediately. Upon review of the reports, the Society may request an occasional survey when considered necessary.

B1.1.5 Postponement of Surveys

Sub-paragraph (2) 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) is omitted.)

(2) Approval of postponement of Surveys

The Society will verify the items specified in **(a)** and **(b)** below, and upon approval, will return one copy of the application to the applicant as proof of approval. The applicant is to take suitable action, such as to keep the approval letter on board the ship, in order to show the Surveyor that the ship is accepted to extend the Survey by the Society.

(a) The ship is maintained in good order. Verification may be made by reviewing the description of the current condition of the ship on the application and the report file of the Class Surveys.

(b) There are no ~~outstanding recommendations~~ critical Conditions in the survey reports. ~~Outstanding recommendations~~ Critical Conditions (used hereafter in this Part) refer to matters that affect or may affect the seaworthiness of the ship.

((c) is omitted.)

B1.2 Specialized Ships, Installations, and Apparatus

Paragraphs B1.2.3 and B1.2.4 have been deleted.

~~**B1.2.3 Surveys of Water Jet Propulsion Systems, etc.**~~

~~With respect to the wording "specified separately by the Society" in **1.2.3, Part B of the Rules**, reference is to be made to **Annex D1.1.3-1 "Guidance for the Survey and Construction of Waterjet Propulsion Systems", Part D of the Guidance** for water jet propulsion systems and **Annex D1.1.3-3 "Guidance for the Survey and Construction of Azimuth Thrusters", Part D of the Guidance** for azimuth thrusters.~~

~~**B1.2.4 Surveys of Selective Catalytic Reduction (SCR) Systems, etc.**~~

~~With respect to the wording "specified separately by the Society" in **1.2.4, Part B of the Rules**, reference is to be made to **Annex D1.3.1-5(1) "Guidance for the Survey and Construction of Selective Catalytic Reduction Systems and Associated Equipment", Part D of the Guidance** for selective catalytic reduction (SCR) systems, **Annex D2.1.1-5 "Guidance for the Survey and Construction of Exhaust Gas Recirculation Systems and Associated Equipment", Part D of the Guidance** for exhaust gas recirculation (EGR) systems, and **Annex D1.3.1-5(2) "Guidance for the Survey and Construction of Exhaust Gas Cleaning Systems and Associated Equipment", Part D of the Guidance** for exhaust gas cleaning systems (EGCS).~~

B2 CLASSIFICATION SURVEYS

B2.5 Alterations

B2.5.1 Examination of Altered Parts

Sub-paragraph -6 has been added as follows.

6 In applying the provisions of **2.5.1, Part B of the Rules**, for ships where selective catalytic reduction systems, exhaust gas cleaning systems or exhaust gas recirculation systems are newly installed, applicable surveys to the relevant systems are to be carried out in accordance with **2.1, Part B of the Rules**.

B3 ANNUAL SURVEYS

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

B3.2.2 General Examination

Sub-paragraph -3 has been amended as follows.

3 The examination stipulated in items 14 and 15 of **Table B3.2, Part B of the Rules** is to be carried out in accordance with following **(1)** to **(~~14~~15)**:

(1) Fire pumps, fire main, hydrants, hoses and nozzles and the international shore connection are to be examined.

(2) For ships designed to carry containers on or above the weather deck, water mist lance, and as appropriate, the mobile water monitors and all necessary hoses, fittings and required fixing hardware are to be examined.

(~~2~~3) Provision of the portable and non-portable fire extinguishers is to be checked, and the condition of these is to be randomly examined.

(~~3~~4) For the firefighters' outfits, examinations for the following **(a)** to **(c)** are to be carried out.

(a) It is to be confirmed that firefighters' outfits including its self-contained compressed air

breathing apparatus are complete and in good condition.

(b) It is to be confirmed that the cylinders, including the spare cylinders, of any required self-contained breathing apparatus are suitably charged, and that on board means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used are provided.

(c) Provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe specified in **10.10.4, Part R of the Rules** is to be confirmed.

(~~4~~5) Operational readiness and maintenance of firefighting systems are to be checked.

(~~5~~6) The fixed firefighting system for the machinery, cargo, vehicle, special category and ro-ro spaces is to be examined, and it is to be confirmed that its means of operation is clearly marked.

(~~6~~7) The fire-extinguishing and special arrangements in the machinery spaces (such as skylights, funnel, ventilation openings, power operated and other doors, stopping devices for ventilators, boiler forced and induced draft fans and the oil fuel pumps and other pumps that discharge flammable liquids) are to be examined.

(~~7~~8) It is to be confirmed that that fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms, where applicable, are provided with two separate controls, one for opening of the gas piping and one for discharging the gas from the storage container, each of them located in a release box clearly identified for the particular space.

(~~8~~9) Any fire detection and alarm system (including manually operated call points) and any sample extraction smoke detection system are to be examined, as far as possible.

(~~9~~10) The fire-extinguishing systems for spaces containing paint and/or flammable liquids and deep-fat cooking equipment in accommodation and service spaces are to be examined.

(~~10~~11) General emergency alarm system is to be examined.

(~~11~~12) The fire protection arrangements (such as closing appliance, ventilation system, portable fire extinguisher) in cargo, vehicle and ro-ro spaces are to be examined. This includes the fire safety arrangements for vehicle carriers carrying motor vehicles with compressed hydrogen or natural gas in their tanks for their own propulsion as cargo, where applicable.

(~~12~~13) Any manual and automatic fire doors are to be examined, as far as practicable.

(~~13~~14) It is to be confirmed that the means of escape from accommodation, machinery and other spaces are satisfactory.

(~~14~~15) Overhaul inspections of the self priming pump and associated equipment, etc. of emergency fire pumps are conducted at least once every five years, and are to be confirmed to be maintained in good working order.

B3.2.3 Performance Tests

Sub-paragraph -2(4) has been amended as follows.

2 With regard to item 3 of **Table B3.3, Part B of the Rules**, operation tests for the following **(1)** to **(5)** are to be carried out as far as practicable:

(1) Various systems specified in **5.2.2**, **8.3.1-3** and **9.5.2-3, Part R of the Rules**

(2) The means of control provided for closing the various openings in cargo, vehicle and ro-ro spaces

(3) Any manual and automatic fire doors

(4) The fire dampers of ventilation ducts, and the means of closing the main inlets and outlets of all ventilation systems

(5) The means of stopping power ventilation systems from outside the space served

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

Paragraph B3.4.1 has been amended as follows.

B3.4.1 General

1 In applying **3.4.1, Part B of the Rules**, the cargo, bunker, ballast and vent piping systems (including PRVs, vacuum relief valves, vent masts and protective screens) are ~~is~~ to be examined as far as practicable.

2 Where applicable, alternative design and arrangements, if any, for the segregation of the cargo area are to be examined in accordance with the test, inspection and maintenance requirements specified in the approved documentation.

B3.4.2 Examinations

Sub-paragraphs -2 and -9 have been amended as follows.

1 (Omitted)

2 In applying item 3(b) of **Table B3.9,** ~~the~~ cargo and process piping (~~,~~ including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements, and water curtain protection as appropriate) are also to be examined.

3 (Omitted)

4 (Omitted)

5 (Omitted)

6 (Omitted)

7 (Omitted)

8 (Omitted)

9 In applying item 9(i) of **Table B3.9, Part B of the Rules**, it is to be confirmed that electrical equipment in ~~gas-dangerous spaces and zones~~ hazardous areas is in a satisfactory condition and is being properly maintained.

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

B3.5.1 General

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

In applying **3.5.1, Part B of the Rules**, the following **(1)** to **(3)** are also to be applied.

(1) The cargo transfer arrangements are to be examined.

(2) The cargo tank vent system~~,~~ (including the pressure/vacuum valves and secondary means to prevent over- or under-pressure and devices to prevent the passage of flame) and the arrangements of cargo tank purging with inert gas, where provided, ~~is~~are to be examined as far as practicable.

(3) The gauging devices, high-level alarms and valves associated with overflow control are to be examined.

B4 INTERMEDIATE SURVEYS

B4.4 Special Requirements for Ships Carrying Liquefied Gases in Bulk

B4.4.2 Examinations

Sub-paragraph -2 has been amended as follows.

2 The wording "hazardous areas" in item 3 of **Table B4.6, Part B of the Rules** refers to the hazardous areas specified in **4.2.3-3, -4** and **-5, Part H of the Rules** as well as in **1.1.5(23), Part N of the Rules**. In applying this item, it is to be checked for defective equipment, fixtures and wiring is to be checked.

B5 SPECIAL SURVEYS

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

B5.4.2 Examinations

Sub-paragraph -2 has been amended as follows.

2 The wording "hazardous areas" in item 6 of **Table B5.27, Part B of the Rules** refers to the hazardous areas specified in **4.2.3-3, -4** and **-5, Part H of the Rules** as well as in **1.1.5(23), Part N of the Rules**.

B8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

B8.1 Propeller Shaft and Stern Tube Shaft Surveys

B8.1.3 Preventive Maintenance System

Sub-paragraph -5 has been added as follows.

5 The wording "properly monitored" in **8.1.3(1)** and **(2), Part B of the Rules** as it pertains to "vibrations of the power transmission systems in the propulsion systems or the Fe-density of the lubricating oil in the azimuth thruster casings" means that the instruments specified in **(1)** or **(2)** are used, the data and the result of the analysis are to be evaluated before the survey and are to be retained on board at all times. However, the following requirements specified in **(3)** are to be satisfied.

(1) A vibration measurement system to measure vibration of power transmission system in the azimuth thrusters complying with the following **(a)** to **(c)**. Where the system is fixed type, the environmental tests specified in **18.7.1(1), Part D of the Rules** are to be carried out.
   (a) The measurement is to be carried out regularly at intervals not exceeding 3 *months*.
   (b) Measurement points and the relevant data are to be in accordance with those described in the guidance for measurement in the management manual concerning the vibration measurement system.
   (c) A trend display and frequency analysis of the measurement data is to be provided.

(2) A Fe-density measurement system of lubricating oil in the azimuth thrusters casings complying with the following **(a)** to **(c)**. Where the system is fixed type, the environmental tests specified in **18.7.1(1), Part D of the Rules** are to be carried out.
   (a) Sampling is to be carried out regularly at intervals not exceeding 3 *months*.
   (b) The measurement data is to be the amount of Fe per hour, considering the change of new lubricating oil. A trend display of the data is to be provided.
   (c) Sampling is to be carried out when the azimuth thrusters are operating at sea as far as possible. When the sampling can only be conducted at port, the sampling is to be carried out within 30 *minutes* after said thrusters stop.

(3) Measurement data
   (a) The executive management (hereinafter referred to as a "management") is to determine the criteria for each parameter (including the criteria for alarm and abnormal conditions) for the ship taking into account its experience and knowledge.
   (b) The management is to submit the analysis records with the data after every analysis of the sample oil. In this document, the management's opinion, such as on the necessity for withdrawing the azimuth thrusters, is to be included.

B9 PLANNED MACHINERY SURVEYS

B9.1 Planned Machinery Surveys

B9.1.1 Application

Sub-paragraph (5) has been amended as follows.

The Planned Machinery Survey generally applies to surveys of machinery and equipment that have had much use. However, it does not apply to the following machinery, equipment and survey items.

((1) to (4) are omitted.)

(5) Measurement of crankshaft deflections of ~~main diesel~~ reciprocating internal combustion engines used as main propulsion machinery and clearances of stern tubes or shaft bracket bearings at their aft ends

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

B9.1.2 Continuous Machinery Surveys (CMS)

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

1 Application of CMS

((1) is omitted.)

(2) Auxiliaries prescribed in item ~~5~~7 of **Table B9.1, Part B of the Rules** are as follows:
((a) to (o) are omitted.)

Sub-paragraph -5(4) has been amended as follows.

5 Substitution for open-up examinations

The machinery and equipment listed below may be exempt from open-up examinations if they are found to be in satisfactory condition by carrying out the examinations listed and examining records such as the logbooks. However, when defects are found during the examinations, or if the maintenance condition is judged to be questionable as a result of examining the logbooks or other records, open-up examinations may be required.

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

(4) Auxiliary ~~diesel~~ reciprocating internal combustion engines that are not normally used at sea and those that have a total running time of less than 7,000 hrs counting from the last open-up examination
Visual examinations under their operating conditions (However, an open-up examination is required when the total running time reaches 7,000 hrs counting from the last open-up examination)

Sub-paragraphs -6(1) and (2) have been amended as follows.

6 Confirmatory Survey

In ships deemed by the Society as maintaining their machinery and equipment well, overhaul inspections according to the CMS Program specified in **-3** by the shipowner (or the ship management company) may forgo the open-up examination performed in the presence of Surveyors by conducting the following confirmatory surveys, provided that the machinery and equipment are

overhauled as part of the ship's maintenance practices and the records from such overhauls are kept in good order. In this case, the due date of the next open-up examination is 5 *years* from the date of its last overhaul and inspection.

(1) Procedure of the confirmatory survey

((a) to (c) are omitted.)

(d) Visual examinations of lubricating oil conditions are to be carried out through open-up inspections, etc. of the lubricating oil filters of crankshafts, main bearings, crankpin bearings, crankpin bolts~~,~~ as well as ~~main diesel engines engine~~ camshafts ~~and main diesel engine~~ camshaft driving devices of reciprocating internal combustion engines used as main propulsion machinery.

((e) to (g) are omitted.)

(2) Items applicable to the confirmatory survey

Items of machinery and equipment applicable to the confirmatory surveys are as follows.

(a) ~~Main diesel~~ Reciprocating internal combustion engines used as main propulsion machinery

(b) ~~Diesel~~ Reciprocating internal combustion engines used for driving generators, auxiliary machinery essential for main propulsion or auxiliary machinery for manoeuvring and safety of the ship

((c) and (d) are omitted.)

((3) is omitted.)

B9.1.3 Planned Machinery Maintenance Scheme (PMS)

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

4 Approval of PMS

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

(3) Machinery Maintenance Records

Machinery maintenance records are to include at least the following items. These records are to be retained on board the ship at all times.

((a) to (g) are omitted.)

(h) Results of visual examinations of lubricating oil conditions carried out through open-up examinations of the lubricating oil filters, etc. of crankpins, crank journals, thrust shafts and bearings of ~~main diesel~~ reciprocating internal combustion engines used as main propulsion machinery (in cases where the principle components of such engines were inspected through independent open-up surveys conducted by chief engineers)

((4) and (5) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2020.

Amendment 1-4

B2 CLASSIFICATION SURVEYS

B2.3 Sea Trials and Stability Experiments

B2.3.1 Sea Trials

Sub-paragraph -5 has been amended as follows.

5 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 ~~diesel~~ reciprocating internal combustion engines, the output test shown in **Table B2.3.1-5**, is to be used as the standard. For ~~diesel~~ 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 ~~for~~ 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 ~~diesel~~ engines start continuously for the number required by **2.5.3-2** or **4.4.3-2, Part D of the Rules**.

((4) and (5) are omitted.)

(6) Governor tests
For reciprocating internal combustion engines ~~for~~ 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 **2.4.2-1, Part H of the Rules** are to be confirmed.

((7) and (8) are omitted.)

(9) Low pressure (i.e. pressure less than 1 *MPa*) gas-fuelled engines are to comply with the requirements specified in **(1)** and **(6)** ~~(in such cases, the terms "diesel engines" and "engines" are to be read as "gas-fuelled engines")~~. For low pressure gas-fuelled dual-fuel engines, the output tests and governor tests ~~required by the above-mentioned requirements~~ are to be carried out for all operating modes (i.e. the gas mode, diesel mode, etc. specified in **1.4-3 of Annex 4, Part GF** or **1.4-3 of Annex 4, Part N**). The 110% load test is not required for the gas mode.

((10) is omitted.)

Table B2.3.1-5 has been amended as follows.

Table B2.3.1-5 Sea Trials of ~~Diesel~~ Reciprocating Internal Combustion Engines

Test items	Use of engines		
	Main engines of ~~diesel~~ ships in which reciprocating internal combustion engines are used as main propulsion machinery (excluding electric propulsion ships) (1)	Reciprocating internal combustion ~~E~~engines driving generators (including main engines of electric propulsion ships) (2)	Reciprocating internal combustion ~~E~~engines driving auxiliaries (excluding auxiliary machinery for specific use etc.)
(Omitted)			

Notes:
((1) to (10) are omitted.)

Sub-paragraphs -9(1) and (3) have been amended as follows.

9 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**. ~~For gas-fuelled engines, the term "diesel engines" is to be read as "gas-fuelled engines".~~
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) ~~To~~ For high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in **(2)** apply mutatis mutandis.

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to reciprocating internal combustion engines or gas turbines whose applications for approval are submitted to the Society before the effective date.

Amendment 1-5

B2 CLASSIFICATION SURVEYS

B2.3 Sea Trials and Stability Experiments

B2.3.1 Sea Trials

Sub-paragraph -13 has been amended as follows.

13 "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 **(~~7~~8)**.
((1) to (7) are omitted.)
(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.

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2020.
2. Notwithstanding the amendments to the Guidance, the current requirements apply to EGR systems whose applications for approval are submitted to the Society before the effective date installed on ships for which the date of contract for construction is before the effective date.

Amendment 1-6

B2 CLASSIFICATION SURVEYS

B2.3 Sea Trials and Stability Experiments

B2.3.1 Sea Trials

Sub-paragraph -16 has been added as follows.

16 "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

EFFECTIVE DATE AND APPLICATION (Amendment 1-6)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to waterjet propulsion systems or azimuth thrusters whose applications for approval are submitted to the Society before the effective date installed on ships for which the date of contract for construction is before the effective date.

Amendment 1-7

B8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

B8.1 Propeller Shaft and Stern Tube Shaft Surveys

Paragraph B8.1.2 has been amended as follows.

B8.1.2 Partial Surveys

1 The "reference standards deemed appropriate by the Society" referred to in **8.1.2-1(2)(b)i), Part B of the Rules** means the reference standards specified in the following **(1)** and **(2)**:

(1) The following **(a)** to **(d)** upper limits for ~~M~~metal particles ~~(upper limits)~~; however, if the test results of the oil analysis suggest that the sample oil does not represent the lubricating oil in the stern tube and is suspected to be invalid (e.g., when only iron (Fe) exceeds the upper limit of **(a)** below, it is suspected that rust in the lubricating oil tank is the cause.), the Surveyor instruct the shipowner (or the ship management company) to promptly re-perform the oil analysis and to be verified the test results of the oil analysis by the time of the first periodical survey (excluding those specified in **1.1.3-1(5), Part B of the Rules**) on or after the day 3 *months* after the day of receiving the said instruction. In order to avoid the need to receive such instructions, the Society recommends that periodic oil analysis be performed at intervals shorter than those specified in **1.3.1(25)(k)i), Part B of the Rules** so that the oil analysis to be re-performed by the shipowner (or the ship management company) in preparation for the above cases is performed at intervals not exceeding 6 *months* from the date of the last valid oil analysis. In either case, the re-performed lubricant analysis is considered to comply with the requirements of this paragraph if the test results for metal particles satisfy the following upper limits.
   (a) Iron (Fe): 50 *ppm*
   (b) Tin (Sn): 20 *ppm*
   (c) Lead (Pb): 20 *ppm*
   (d) Sodium (Na): 80 *ppm*

(2) The following **(a)** and **(b)** upper limits for IR Oxidation and separated water ~~(upper limits)~~; however, in the case of environmentally acceptable lubricants (EAL), regardless of the following **(a)**, observation of any trends (such as TAN (total acid number), viscosity and change in colour etc.) based on periodical oil analysis can be made.
   (a) IR oxidation @ 5.85μm: 10 ($Abs.unit/cm$)
   (b) Separated water: 1.0 %

2 The "reference standards deemed appropriate by the Society" referred to in **8.1.2-1(2)(b)ii), Part B of the Rules** means the reference standards specified in the following **(1)** ~~and~~ to ~~(2)~~**(3)**:

(1) The following **(a)** and **(b)** upper limits for ~~C~~chloride content and sodium content ~~(upper limits)~~
   ((a) and (b) are omitted.)

(2) pH
   Lower limit values determined based upon characteristics of the corrosion inhibitors used, but not to be less than 11

(3) Bearing particles and other particles
   (a) The following **i)** and **v)** upper limits for ~~M~~metal particles ~~(upper limits)~~
      i) Iron (Fe): 25 *ppm*
      ii) Chromium (Cr): 5 *ppm*
      iii) Nickel (Ni): 5 *ppm*

iv) Copper (Cu): 40 *ppm*
v) Silicon (Si): 30 *ppm*

((b) is omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-7)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships other than ships the delivery of which is on or after 1 January 2016 until the first propeller shaft and stern tube shaft surveys scheduled on or after 1 January 2016 are completed.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Guidance may apply, upon request of the owner, to ships other than ships the delivery of which is on or after 1 January 2016 before the first propeller shaft and stern tube shaft surveys scheduled on or after 1 January 2016 are completed.

Amendment 1-8

Annex B2.1.4-1(3)(h)i) PROCEDURES FOR ON-BOARD FUNCTION TEST OF FIXED FIRE DETECTION AND ALARM SYSTEM IN MACHINERY SPACES

1.2 Test Details

1.2.2 Locations for Igniting Mock Fire

Sub-paragraphs (1) and (2) have been amended as follows.

A mock fire is to be ignited at each place specified in **(1)** to **(5)** below.

The places shown in **(4)** and **(5)** may be exempted, if deemed appropriate by the Surveyor after taking into account factors such as the arrangement of detectors and the ventilation condition.

(1) Near exhaust gas manifolds of ~~main diesel~~ reciprocating internal combustion engines used as main propulsion machinery

(2) Near exhaust gas manifolds of ~~diesel~~ reciprocating internal combustion engines driving main generators

((3) to (5) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-8)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to reciprocating internal combustion engines for which the application for approval is submitted to the Society before the effective date.