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Editorial Correction for Technical Rules and Guidance

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About this document:

This document is a compilation of corrections of editorial corrections of the Society's Technical Rules.

Errata in this document refer to corrections that do not change the requirements, intent, or technical background of the requirements specified in the rules and guidance, e.g., correction of typographical errors or references.

Content:

Regulations for the Classification and Registry of Ships Chapter 2 2.1.1

Correction	Present	Note
Ships will be assigned a class and registered in the Classification Register defined in **2.1.5** when the ships have been surveyed for classification by the Society’s Surveyors (hereinafter referred to as “the Surveyors”) with regard to their hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines in accordance with the rules for the survey and construction of ships provided separately (hereinafter referred to as “the Ship Rules”) and found by the Society to be in compliance with the requirements of the Ship Rules. However, the Society may refuse the classification of ships regardless of the results of the survey in accordance with **1.4-3~~, Chapter 1~~ of the ~~“~~Conditions of Service for Classification of ~~ships~~Ships and ~~registration~~Registration of ~~installations”~~Installations**.	Ships will be assigned a class and registered in the Classification Register defined in **2.1.5** when the ships have been surveyed for classification by the Society’s Surveyors (hereinafter referred to as “the Surveyors”) with regard to their hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines in accordance with the rules for the survey and construction of ships provided separately (hereinafter referred to as “the Ship Rules”) and found by the Society to be in compliance with the requirements of the Ship Rules. However, the Society may refuse the classification of ships regardless of the results of the survey in accordance with **1.4-3, Chapter 1 of the “Conditions of Service for Classification of ships and registration of installations”**.	Wording correction

Regulations for the Classification and Registry of Ships Chapter 2 2.6-1

Correction	Present	Note
1 The Society will withdraw the class and notify the same to the owner of a ship when: (1) it is requested by the owner of the ship; (2) the Society recognizes that the ship can no longer be used because it was scrapped, sank, etc.; (3) the Surveyors report that the ship has not complied with the Ship Rules as regards surveys defined in **2.2** and the Society accepts the report; (4) the ship is not subjected to the survey defined in **2.2**; (5) survey fees are not paid; or (6) the ships subject to **1.4-3**~~**, Chapter 1**~~ **of the** ~~**“**~~**Conditions of Service for Classification of** ~~**ships**~~**Ships and** ~~**registration**~~**Registration of** ~~**installations”**~~**Installations**.	**1** The Society will withdraw the class and notify the same to the owner of a ship when: (1) it is requested by the owner of the ship; (2) the Society recognizes that the ship can no longer be used because it was scrapped, sank, etc.; (3) the Surveyors report that the ship has not complied with the Ship Rules as regards surveys defined in **2.2** and the Society accepts the report; (4) the ship is not subjected to the survey defined in **2.2**; (5) survey fees are not paid; or (6) the ships subject to **1.4-3, Chapter 1 of the “Conditions of Service for Classification of ships and registration of installations”**.	Wording correction

Regulations for the Classification and Registry of Ships Chapter 3 3.1.1

Correction	Present	Note
Installations indicated in **(1)** to **(15)** hereunder of the ship to be registered or registered under **2.1** will be assigned characters and registered in the Installations Register defined in **3.1.4** when the installations have been surveyed for registration by the Surveyors in accordance with the rules for the survey and construction of installations provided separately (hereinafter referred to as “the Installation Rules”) and found by the Society to be in compliance with the requirements of the Installation Rules. However, the Society may refuse the registration of installations regardless of the results of the survey in accordance with **1.4-3~~, Chapter 1~~ of the ~~“~~Conditions of Service for Classification of ~~ships~~Ships and ~~registration~~Registration of ~~installations”~~Installations**. (1) Cargo Refrigerating Installations (2) Cargo Handling Appliances (3) Marine Pollution Prevention Installations (4) Safety Equipment (5) Radio Installations (6) Automatic and Remote Control Systems (7) Navigation Bridge Systems (8) Diving Systems (9) Preventive Machinery Maintenance Systems (10) Integrated Fire Control Systems (11) Hull Monitoring System (12) Anti-Fouling Systems on Ships (13) Centralized Cargo Monitoring and Control Systems (14) Ballast Water Management Installations (15) Other installations deemed appropriate by the Society	Installations indicated in **(1)** to **(15)** hereunder of the ship to be registered or registered under **2.1** will be assigned characters and registered in the Installations Register defined in **3.1.4** when the installations have been surveyed for registration by the Surveyors in accordance with the rules for the survey and construction of installations provided separately (hereinafter referred to as “the Installation Rules”) and found by the Society to be in compliance with the requirements of the Installation Rules. However, the Society may refuse the registration of installations regardless of the results of the survey in accordance with **1.4-3, Chapter 1 of the “Conditions of Service for Classification of ships and registration of installations”**. (1) Cargo Refrigerating Installations (2) Cargo Handling Appliances (3) Marine Pollution Prevention Installations (4) Safety Equipment (5) Radio Installations (6) Automatic and Remote Control Systems (7) Navigation Bridge Systems (8) Diving Systems (9) Preventive Machinery Maintenance Systems (10) Integrated Fire Control Systems (11) Hull Monitoring System (12) Anti-Fouling Systems on Ships (13) Centralized Cargo Monitoring and Control Systems (14) Ballast Water Management Installations (15) Other installations deemed appropriate by the Society	Wording correction

Rules for the survey and construction of steel ships Part B Chapter 1 1.1.3-4

Correction	Present	Note
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 considers the ship to be subject to **1.4-3** of the ~~**CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.~~**Conditions of Service for Classification of Ships and Registration of Installations**.	**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 considers the ship to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 1 1.1.5-1

Correction	Present	Note
1 Special Surveys, Docking Surveys carried out at the period specified in **1.1.3-1(4)(a)**, Boiler Surveys carried out at the period specified in **1.1.3-1(5)(a)** and Ordinary Surveys for Propeller shafts Kind 2 specified in ~~**1.1.3-1(6)(a)ii)**~~**8.2.2-1(1)** may be postponed as specified in **(1)** or **(2)** below subject to the approval by the Society in advance. However, no postponement is to be permitted on the period of 36 *months* between any two Docking Surveys, Boiler Surveys and Ordinary Surveys for Propeller shafts Kind 2 respectively. (1) Maximum 3 *months* for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed. (2) Maximum 1 *month* for the ship engaged on short voyages.	**1** Special Surveys, Docking Surveys carried out at the period specified in **1.1.3-1(4)(a)**, Boiler Surveys carried out at the period specified in **1.1.3-1(5)(a)** and Ordinary Surveys for Propeller shafts Kind 2 specified in **1.1.3-1(6)(a)ii)1)** may be postponed as specified in **(1)** or **(2)** below subject to the approval by the Society in advance. However, no postponement is to be permitted on the period of 36 *months* between any two Docking Surveys, Boiler Surveys and Ordinary Surveys for Propeller shafts Kind 2 respectively. (1) Maximum 3 *months* for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed. (2) Maximum 1 *month* for the ship engaged on short voyages.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 1 1.1.7-1

Correction	Present	Note
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 **An3~~.~~** and **An.5, Annex 1.~~2~~1, Part 2-2, Part C** is to be verified at Special Surveys and Intermediate Surveys (for ships over 10 years of age). 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**.	**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 **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). 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**.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 1 1.1.7-3

Correction	Present	Note
3 For ships which are applicable to **31B.2.1-2, Part C**, the following surveys are to be carried out at periodical surveys in addition to the surveys required in this chapter. (1) is omitted. (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, Part C 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**.	**3** For ships which are applicable to **31B.2.1-2, Part C**, the following surveys are to be carried out at periodical surveys in addition to the surveys required in this chapter. (1) is omitted. (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**.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 1 1.1.8-3

Correction	Present	Note
3 If the survey to be carried out under the requirements of **-2(2)** above is a Special Survey, either the overdue Special Survey or the next due Special Survey is to be carried out. In such cases, the validity of the Classification Certificate is to be in accordance with the requirements of **2.~~4.2-3~~6, Guidance for the Classification and Registry of Ships** corresponding to the Special Survey to be carried out.	**3** If the survey to be carried out under the requirements of **-2(2)** above is a Special Survey, either the overdue Special Survey or the next due Special Survey is to be carried out. In such cases, the validity of the Classification Certificate is to be in accordance with the requirements of **2.4.2-3, Guidance for the Classification and Registry of Ships** corresponding to the Special Survey to be carried out.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 2 2.1.2-1

Correction	Present	Note
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) to (4) are omitted.) (5) Ships using low-flashpoint fuels ((a) to (z) are omitted.) (aa) Plans and documents for the Gas Combustion Units (*GCU*s) specified in **1.3, Annex 2A, Part GF of the Guidance** (ab) Plans and documents for the gas-fuelled engines specified in **1.3, Annex 1.1.3-2** and **1.3, Annex ~~4~~1.1.3-3, Part GF of the ~~Guidance~~Rules** ((ac) to (ak) are omitted.) (6) Plans and documents for in-water surveys specified in **6.1.2-3** (7) Other plans and documents not specified in **(1)** through **(6)** which are deemed necessary by the Society	**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) to (4) are omitted.) (5) Ships using low-flashpoint fuels ((a) to (z) are omitted.) (aa) Plans and documents for the Gas Combustion Units (*GCU*s) specified in **1.3, Annex 2A, Part GF of the Guidance** (ab) Plans and documents for the gas-fuelled engines specified in **1.3, Annex 3** and **1.3, Annex 4, Part GF of the Guidance** ((ac) to (ak) are omitted.) (6) Plans and documents for in-water surveys specified in **6.1.2-3** (7) Other plans and documents not specified in **(1)** through **(6)** which are deemed necessary by the Society	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 2 2.1.2-8

Correction	Present	Note
8 For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **17.2.2-3** and **17.2.2-4**~~ of 17.2.2~~**, Part GF of the Rules** are to be submitted for Society approval.	**8** For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **-3** and **-4** of **17.2.2, Part GF** are to be submitted for Society approval.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 2 2.2.1-5

Correction	Present	Note
5 For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **17.2.2-3** and **17.2.2-4**~~ of 17.2.2~~**, Part GF of the Rules** are to be submitted for Society approval.	**5** For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **-3** and **-4** of **17.2.2, Part GF** are to be submitted for Society approval.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 2 2.3.1-1

Correction	Present	Note
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) is omitted.) (2) Astern test ((a) and (b) are omitted.) (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 of the**	**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) is omitted.) (2) Astern test ((a) and (b) are omitted.) (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-**	Reference correction

Rules or **2.5.1-1(1~~) in~~), Annex 16.1.1-3, Part N of the Rules**). (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) and (4) are omitted.) (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) to (f) are omitted.) (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~~3, Part GF** or **2.5.1-1(1~~) in~~), Annex 16.1.1-~~2~~3, 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	**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) and (4) are omitted.) (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) to (f) are omitted.) (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) to (13) are omitted.)	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) to (13) are omitted.)	

Rules for the survey and construction of steel ships Part B Chapter 3 3.3.4-2

Correction	Present	Note
2 Surveys for ships fitted with azimuth thrusters are to be carried out in accordance with the following **(1)** to **(3)**: (1) and (2) are omitted (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 the lubricating oil sampling and analysis specified in **(1)(a)**, Item **5**, **Table B8.1-1** is being carried out regularly.	**2** Surveys for ships fitted with azimuth thrusters are to be carried out in accordance with the following **(1)** to **(3)**: (1) and (2) are omitted (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 the lubricating oil sampling and analysis specified in **(1)(a)**, Item **5**, **Table B8.1** is being carried out regularly.	Reference correction

Rules for the survey and construction of steel ships Part B Chapter 5 5.2.2-1

Correction	Present	Note
1 At Special Surveys, items **(1)** to **(4)** below in addition to hull, equipment, fire-extinction, and fittings specified in **4.2.2** are to be examined carefully. ((1) to (3) are omitted.) (4) For watertight cable penetrations, the surveys specified in **(a)** to **(c)** below are to be carried out. (a) All watertight cable penetrations are to be examined to confirm their satisfactory condition. (b) The results of surveys are to be recorded in the watertight cable penetration register and the register is to be kept on board. (c) Firms approved by the Society under the "**Rules for Approval of ~~Manufactures~~Manufacturers and Service Suppliers**" may carry out inspections of watertight cable penetrations in cases where special consideration is given by the attending surveyor. The attending surveyor is to review the watertight cable penetration register which is recorded by the firm.	**1** At Special Surveys, items **(1)** to **(4)** below in addition to hull, equipment, fire-extinction, and fittings specified in **4.2.2** are to be examined carefully. ((1) to (3) are omitted.) (4) For watertight cable penetrations, the surveys specified in **(a)** to **(c)** below are to be carried out. (a) All watertight cable penetrations are to be examined to confirm their satisfactory condition. (b) The results of surveys are to be recorded in the watertight cable penetration register and the register is to be kept on board. (c) Firms approved by the Society under the "**Rules for Approval of Manufactures and Service Suppliers**" may carry out inspections of watertight cable penetrations in cases where special consideration is given by the attending surveyor. The attending surveyor is to review the watertight cable penetration register which is recorded by the firm.	Wording correction

Rules for the survey and construction of steel ships Part B Chapter 5 5.2.6-1

Correction	Present	Note
1 At Special Surveys, thickness measurements are to be carried out in accordance with **(1)** to **(5)** below. (1) Thickness measurements are to be carried out using appropriate ultra-sonic gauging machines or other approved means. The Surveyor may request that the accuracy of the equipment be demonstrated. (2) Thickness measurements are to be carried out at or after the time of the 4th Annual Survey under the attendance of the Surveyor by the firm approved by the Society under the "**Rules for Approval of ~~Manufactures~~Manufacturers and Service Suppliers**". The surveyor may request to have the measurements taken again to ensure acceptable accuracy. ((3) to (5) are omitted.)	**1** At Special Surveys, thickness measurements are to be carried out in accordance with **(1)** to **(5)** below. (1) Thickness measurements are to be carried out using appropriate ultra-sonic gauging machines or other approved means. The Surveyor may request that the accuracy of the equipment be demonstrated. (2) Thickness measurements are to be carried out at or after the time of the 4th Annual Survey under the attendance of the Surveyor by the firm approved by the Society under the "**Rules for Approval of Manufactures and Service Suppliers**". The surveyor may request to have the measurements taken again to ensure acceptable accuracy. ((3) to (5) are omitted.)	Wording correction

Rules for the survey and construction of steel ships Part B Annex 1.5.3 An5 An5.1.1-1

Correction	Present	Note
1 In principle, live streaming video and audio is to be applied to remote surveys as a primary means (refer to **Table ~~1~~ An 3.1**).	**1** In principle, live streaming video and audio is to be applied to remote surveys as a primary means (refer to **Table 1 An 3.1**).	Wording correction

Rules for the survey and construction of steel ships Part B Annex 2.3.1-1 An1 An1.1.1-13

Correction	Present	Note
13 Overshoot angle is the additional heading deviation experienced by the ship after the rudder angle change is executed the second or third time in the zigzag test. See **Fig. ~~1~~An1.4.5~~-4.~~.**	**13** Overshoot angle is the additional heading deviation experienced by the ship after the rudder angle change is executed the second or third time in the zigzag test. See **Fig. 1.4.5-4**.	Reference correction

Rules for the survey and construction of steel ships Part B Annex 2.3.1-2 An3 An3.3.1

Correction	Present	Note
Measurements are to be carried out under the following conditions specified in the following ~~-~~(**1**) to ~~-~~(**8**~~.~~). The actual conditions during measurement are to be recorded on the noise survey report. (1) Measurements are to be taken with the ship in the loaded or ballast condition. (2) Measurements are to be taken at a course that is as straight as possible. (3) Measurements are to be taken at normal service speed and no less than 80% of the maximum continuous rating (*MCR*). Controllable pitch and Voith-Schneider propellers, if any, are to be in the normal seagoing position. This does not apply to special ship types and ships with special propulsion and power configurations. (4) All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch are to operate throughout the measurement period. However, neither energized fog signals nor helicopter operations are to take place during the taking of these measurements. (5) Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, are to be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits in **Table An4.1**, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces.	Measurements are to be carried out under the following conditions specified in the following **-1** to **-8**. The actual conditions during measurement are to be recorded on the noise survey report.	Wording correction

(6) Mechanical ventilation, heating and air-conditioning equipment are to be in normal operation, taking into account that the capacity is to be in accordance with the design conditions. With respect to the requirement, air conditioning vents are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition. (7) In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition. (8) Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.		
~~**1** Measurements are to be taken with the ship in the loaded or ballast condition.~~	**1** Measurements are to be taken with the ship in the loaded or ballast condition.	
~~**2** Measurements are to be taken at a course that is as straight as possible.~~	**2** Measurements are to be taken at a course that is as straight as possible.	
~~**3** Measurements are to be taken at normal service speed and no less than 80% of the maximum continuous rating (*MCR*). Controllable pitch and Voith-Schneider propellers, if any, are to be in the normal seagoing position. This does not apply to special ship types and ships with special propulsion and power configurations.~~	**3** Measurements are to be taken at normal service speed and no less than 80% of the maximum continuous rating (*MCR*). Controllable pitch and Voith-Schneider propellers, if any, are to be in the normal seagoing position. This does not apply to special ship types and ships with special propulsion and power configurations.	
~~**4** All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch are to operate throughout the measurement period. However, neither energized fog signals nor helicopter operations are to take place during the taking of~~	**4** All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch are to operate throughout the measurement period. However, neither energized fog signals nor helicopter operations are to take place during the taking of	

~~these measurements.~~ ~~**5** Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, are to be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits in **Table An 4.1**, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces.~~ ~~**6** Mechanical ventilation, heating and air-conditioning equipment are to be in normal operation, taking into account that the capacity is to be in accordance with the design conditions. With respect to the requirement, air conditioning vents are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.~~ ~~**7** In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.~~ ~~**8** Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.~~	these measurements. **5** Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, are to be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits in **Table An 4.1**, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces. **6** Mechanical ventilation, heating and air-conditioning equipment are to be in normal operation, taking into account that the capacity is to be in accordance with the design conditions. With respect to the requirement, air conditioning vents are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition. **7** In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition. **8** Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.	

Rules for the survey and construction of steel ships Part B Annex 9.1.3 An1 An1.1.1-1

Correction	Present	Note
1 These procedures apply to the tests, examinations, etc. of the computer software required by ships adopting the Planned Machinery Maintenance Scheme (hereinafter referred to as "PMS") or the Condition Based Maintenance Scheme (hereinafter referred to as "CBM") in accordance with the requirements given in **9.1.3-3~~ or B9.1.4-2 ~~, Part B of the Rules**~~.~~ or **B9.1.4-2, Part B of the Guidance**.	**1** These procedures apply to the tests, examinations, etc. of the computer software required by ships adopting the Planned Machinery Maintenance Scheme (hereinafter referred to as "PMS") or the Condition Based Maintenance Scheme (hereinafter referred to as "CBM") in accordance with the requirements given in **9.1.3-3** or **B9.1.4-2 , Part B of the Rules**.	Reference correction

Rules for the survey and construction of steel ships Part C Chapter 29 29.1.2-3

Correction	Present	Note
3 All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with the requirements in **4.2.4**~~ and **4.3.3**~~**, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60°C, the requirements may be suitably modified.	**3** All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with the requirements in **4.2.4** and **4.3.3, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60°C, the requirements may be suitably modified.	Wording correction

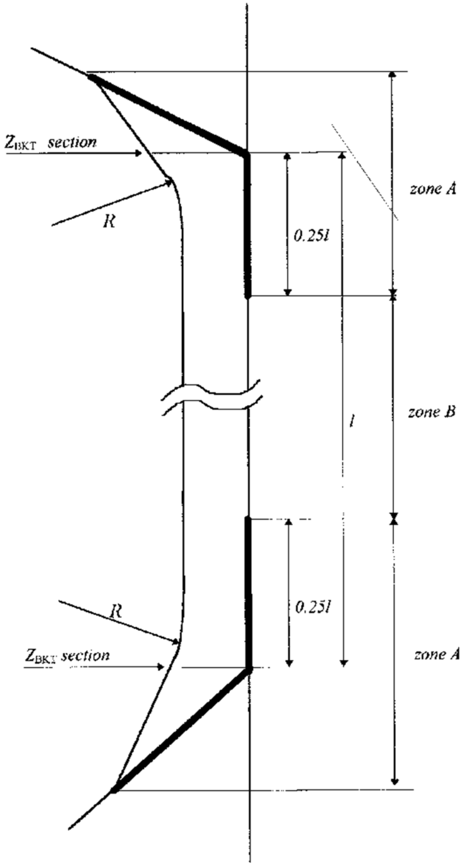
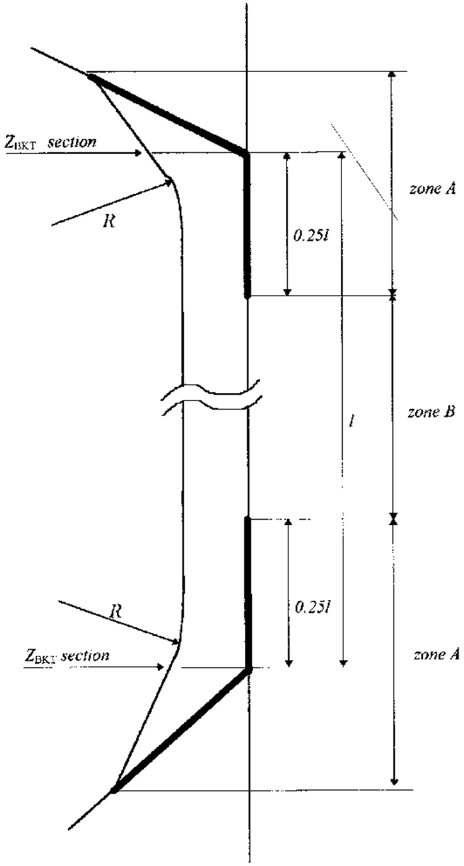
Rules for the survey and construction of steel ships Part C Chapter 30 30.4.2-3

Correction	Present	Note
3 The section modulus of horizontal stiffeners provided on the side plating of the lower stool is not to be less than the value obtained from the formula in **30.3.~~5~~3-5(1)**, where the coefficient, C_2, is to be reduced by 10%. Where vertical stiffeners are provided, the section modulus is not to be less than the value obtained from the formula in **30.3.3-5(2)**.	**3** The section modulus of horizontal stiffeners provided on the side plating of the lower stool is not to be less than the value obtained from the formula in **30.3.5-5(1)**, where the coefficient, C_2, is to be reduced by 10%. Where vertical stiffeners are provided, the section modulus is not to be less than the value obtained from the formula in **30.3.3-5(2)**.	Wording correction

Rules for the survey and construction of steel ships Part C Chapter 31 31.1.2-1

Correction	Present	Note
1 Ships with a length L_1 of not less than 150 m are to be categorized into one of the following types and comply with the requirements of **this Chapter**. L_1 is the distance (m) measured on the waterline at the scantling draught d_S from the forward side of the stem to the centre of the rudder stock. L_1 is to be not less than 96% and need not exceed 97% of the extreme length on the waterline at the scantling draught d_S. In ships without rudder stocks (e.g. ships fitted with azimuth thrusters), the Rule length L_1 is to be taken equal to 97% of the extreme length on the waterline at the scantling draught d_S. d_S is the scantling draught (m) at which the strength requirements for the scantlings of the ship are met and represents the full load condition; it is to be not less than that corresponding to the assigned freeboard. (1) BC-A: Bulk carriers designed to carry bulk cargoes with a bulk cargo density (defined in **31A.1.2~~-1~~(6)**) of 1.0 t/m^3 and above with specified holds empty at designed maximum load draught (hereinafter referred to as "alternately loaded condition") and with all ballast tanks empty. (2) BC-B: Bulk carriers designed to carry bulk cargoes with a bulk cargo density of 1.0 t/m^3 and above in a homogeneously loaded condition at designed maximum load draught with all ballast tanks empty. (3) BC-C: Bulk carriers designed to carry bulk cargoes with a bulk cargo density of less than 1.0 t/m^3 in a homogeneously loaded condition at designed maximum load draught with all ballast tanks empty.	**1** Ships with a length L_1 of not less than 150 m are to be categorized into one of the following types and comply with the requirements of **this Chapter**. L_1 is the distance (m) measured on the waterline at the scantling draught d_S from the forward side of the stem to the centre of the rudder stock. L_1 is to be not less than 96% and need not exceed 97% of the extreme length on the waterline at the scantling draught d_S. In ships without rudder stocks (e.g. ships fitted with azimuth thrusters), the Rule length L_1 is to be taken equal to 97% of the extreme length on the waterline at the scantling draught d_S. d_S is the scantling draught (m) at which the strength requirements for the scantlings of the ship are met and represents the full load condition; it is to be not less than that corresponding to the assigned freeboard. (1) BC-A: Bulk carriers designed to carry bulk cargoes with a bulk cargo density (defined in **31A.1.2-1(6)**) of 1.0 t/m^3 and above with specified holds empty at designed maximum load draught (hereinafter referred to as "alternately loaded condition") and with all ballast tanks empty. (2) BC-B: Bulk carriers designed to carry bulk cargoes with a bulk cargo density of 1.0 t/m^3 and above in a homogeneously loaded condition at designed maximum load draught with all ballast tanks empty. (3) BC-C: Bulk carriers designed to carry bulk cargoes with a bulk cargo density of less than 1.0 t/m^3 in a homogeneously loaded condition at designed maximum load draught with all ballast tanks empty.	Wording correction

Rules for the survey and construction of steel ships Part C Chapter 31 Fig C31.3

Correction	Present	Note
Fig. C31.3 Hold Frames and Upper and Lower Brackets  	Fig C31.3 Hold Frames and Upper and Lower Brackets  	Wording correction

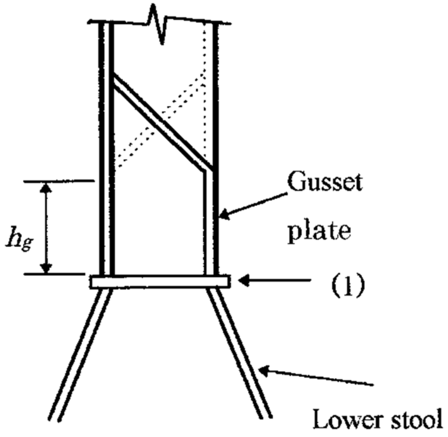
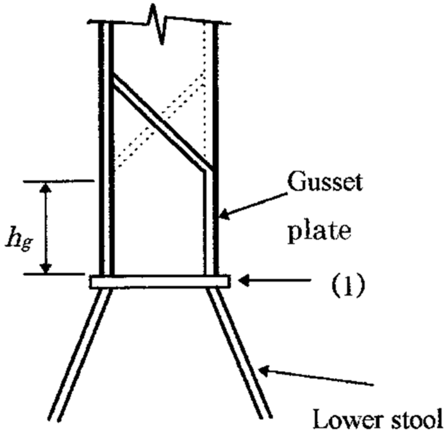
Rules for the survey and construction of steel ships Part C Chapter 31A 31A3.4

Correction	Present	Note
1 The section modulus at the lower end of the corrugation is to be calculated with the following considerations. (1) The width of the compressive corrugation flange to be used for the calculation of the section modulus is not to exceed the effective width b_{ef} obtained by the following. $b_{ef} = C_e\, a$ (*m*) C_e: $\frac{2.25}{\beta} - \frac{1.25}{\beta^2}$ For $\beta > 1.25$ 1.0 For $\beta \leq 1.25$ Where: β: $10^3 \frac{a}{t_f}\sqrt{\frac{\sigma_F}{E}}$ t_f: Net flange thickness (*mm*) a: Width (*m*) of corrugation flange (See **Fig. C31A.3.2a**) σ_F: Yield stress (N/mm^2) of the material E: Modulus of elasticity, 2.06×10^5 (N/mm^2) (2) Where the webs of corrugation are not supported by local brackets below the stool top (or below the inner bottom) in the lower part, the section modulus of the corrugations is to be calculated considering the corrugation webs to be 30% effective. (3) Provided that effective shedder plates as defined in **~~C31A~~31A.3.5-5** are fitted (see **Fig. C31A.3.3a** and **Fig. C31A.3.3b**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section (1) in **Fig. C31A.3.3a** and **Fig. C31A.3.3b**), but it is	**1** The section modulus at the lower end of the corrugation is to be calculated with the following considerations. (1) The width of the compressive corrugation flange to be used for the calculation of the section modulus is not to exceed the effective width b_{ef} obtained by the following. $b_{ef} = C_e\, a$ (*m*) C_e: $\frac{2.25}{\beta} - \frac{1.25}{\beta^2}$ For $\beta > 1.25$ 1.0 For $\beta \leq 1.25$ Where: β: $10^3 \frac{a}{t_f}\sqrt{\frac{\sigma_F}{E}}$ t_f: Net flange thickness (*mm*) a: Width (*m*) of corrugation flange (See **Fig. C31A.3.2a**) σ_F: Yield stress (N/mm^2) of the material E: Modulus of elasticity, 2.06×10^5 (N/mm^2) (2) Where the webs of corrugation are not supported by local brackets below the stool top (or below the inner bottom) in the lower part, the section modulus of the corrugations is to be calculated considering the corrugation webs to be 30% effective. (3) Provided that effective shedder plates as defined in **C31A.3.5-5** are fitted (see **Fig. C31A.3.3a** and **Fig. C31A.3.3b**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section (1) in **Fig. C31A.3.3a** and **Fig. C31A.3.3b**), but it is	Wording correction

not to be greater than 2.5at_f. $2.5a\sqrt{t_f t_{sh}}$ (*cm*^{2}) Where: a: Width (*m*) of corrugation flange (See **Fig. C31A.3.2a**) t_{sh}: Net shedder plate thickness (*mm*) t_f: Net corrugation flange thickness (*mm*) (4) Provided that effective gusset plates as defined in **31A.3.5-6** are fitted (see **Fig. C31A.3.4a** and **Fig. C31A.3.4b**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section (1) in **Fig. C31A.3.4a** and **Fig. C31A.3.4b**). $7h_g\ t_f$ (*cm*^{2}) Where: h_g: Height (*m*) of gusset plate, but not to be greater than $10S_{gu}/7$ (See **Fig. C31A.3.4a** and **Fig. C31A.3.4b**) S_{gu}: Width (*m*) of gusset plate t_f: Net flange thickness (*mm*) (5) If the corrugation webs are welded to sloping stool top plates which have an angle of not less than 45° with the horizontal plane, the section modulus of the corrugations may be calculated taking the corrugation webs as fully effective. For angles less than 45°, the effectiveness of the web may be obtained by linear interpolation between 30% (for 0°) and 100% (for 45°). (See **Fig. C31A.3.4b**) Where effective gusset plates are fitted, the area of flange plates may be increased as specified in (4) above when calculating the section modulus of corrugations. This is not applicable if only shedder	not to be greater than 2.5at_f. $2.5a\sqrt{t_f t_{sh}}$ (*cm*^{2}) Where: a: Width (*m*) of corrugation flange (See **Fig. C31A.3.2a**) t_{sh}: Net shedder plate thickness (*mm*) t_f: Net corrugation flange thickness (*mm*) (4) Provided that effective gusset plates as defined in **31A.3.5-6** are fitted (see **Fig. C31A.3.4a** and **Fig. C31A.3.4b**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section (1) in **Fig. C31A.3.4a** and **Fig. C31A.3.4b**). $7h_g\ t_f$ (*cm*^{2}) Where: h_g: Height (*m*) of gusset plate, but not to be greater than $10S_{gu}/7$ (See **Fig. C31A.3.4a** and **Fig. C31A.3.4b**) S_{gu}: Width (*m*) of gusset plate t_f: Net flange thickness (*mm*) (5) If the corrugation webs are welded to sloping stool top plates which have an angle of not less than 45° with the horizontal plane, the section modulus of the corrugations may be calculated taking the corrugation webs as fully effective. For angles less than 45°, the effectiveness of the web may be obtained by linear interpolation between 30% (for 0°) and 100% (for 45°). (See **Fig. C31A.3.4b**) Where effective gusset plates are fitted, the area of flange plates may be increased as specified in (4) above when calculating the section modulus of corrugations. This is not applicable if only shedder	

plates are fitted.	plates are fitted.	

Rules for the survey and construction of steel ships Part C Chapter 31A Fig. C31A.3.4a

Correction	Present	Note
Fig. C31A.3.~~4.a~~4a  	Fig. C31A.3.4.a  	Wording correction

Rules for the survey and construction of steel ships Part C Chapter 31B 31B.3.4-2

Correction	Present	Note
2 Provided that effective gusset plates or shedder plates as defined in **31B.3.5-4**, and **31B.3.5-5** are fitted (see **Fig. C31A.3.4a** and **Fig. C31A.3.4b**), the section modulus of corrugations at the lower end Z_{le} is to be not greater than Z'_{le} obtained from the following formula: $Z'_{le} = Z_g + 10^3 \times \frac{Qh_g - 0.5h_g^2 s_1 p_g}{\sigma_a}$ (cm^3) Z_g: Section modulus (cm^3) of corrugation according to **-3.** in way of the upper end of shedder plates or gusset plates Q: Shear force (kN) as given in **31B.3.3-2** h_g: Height (m) of shedder plates or gusset plates (See **Fig. C31A.3.3a**, **Fig. C31A.3.3b**, **Fig. C31A.3.4a** and **Fig. C31A.3.4b**) s_1: As given in **31B.3.2-3** p_g: Resultant pressure (kN/m^2) as defined in **31B.3.2-6**, calculated in way of the shedder plates or gusset plates. σ_a: Yield stress of the material (N/mm^2)	**2** Provided that effective gusset plates or shedder plates as defined in **31B.3.5-4**, and **31B.3.5-5** are fitted (see **Fig. C31A.3.4a** and **C31A.3.4b**), the section modulus of corrugations at the lower end Z_{le} is to be not greater than Z'_{le} obtained from the following formula: $Z'_{le} = Z_g + 10^3 \times \frac{Qh_g - 0.5h_g^2 s_1 p_g}{\sigma_a}$ (cm^3) Z_g: Section modulus (cm^3) of corrugation according to **-3.** in way of the upper end of shedder plates or gusset plates Q: Shear force (kN) as given in **31B.3.3-2** h_g: Height (m) of shedder plates or gusset plates (See **Fig. C31A.3.3a**, **C31A.3.3b**, **C31A.3.4a** and **C31A.3.4b**) s_1: As given in **31B.3.2-3** p_g: Resultant pressure (kN/m^2) as defined in **31B.3.2-6**, calculated in way of the shedder plates or gusset plates. σ_a: Yield stress of the material (N/mm^2)	Wording correction

Rules for the survey and construction of steel ships Part C Chapter 31B 31B.4.4-1

Correction	Present	Note
1 Allowable hold loading weight W in the foremost hold is to be calculated by the following formulae, but not to exceed the maximum designed hold loading weight in intact condition: $W = \rho_c V \frac{1}{F}$ (t) Where: $F = 1.05$ in general $F = 1.0$ for steel mill products ρ_c: Bulk cargo density (t/m^3); for steel mill products, is taken as density of steel V: Volume (m^3) occupied by cargo when levelled out at height h_1 h_1: As given by the following $h_1 = \frac{X}{\rho_c g}$ (m) Where: X: The lesser of the following X_1 and X_2, however, it may be taken as X_1 using perm = 0 for steel mill products: $X_1 = \frac{Z+\rho g(E-h_f)}{1+\frac{\rho}{\rho_C}(perm-1)}$ (kN/m^2) $X_2 = Z + \rho g(E - h_f perm)$ (kN/m^2) Where: ρ: Sea water density; 1.025 (t/m^3) g: Acceleration due to gravity; 9.81 (m/s^2) E: $d_f - 0.1D$ (m) d_f: As specified in **31B.4.2**	**1** Allowable hold loading weight W in the foremost hold is to be calculated by the following formulae, but not to exceed the maximum designed hold loading weight in intact condition: $W = \rho_c V \frac{1}{F}$ (t) Where: $F = 1.05$ in general $F = 1.0$ for steel mill products ρ_c: Bulk cargo density (t/m^3); for steel mill products, is taken as density of steel V: Volume (m^3) occupied by cargo when levelled out at height h_1 h_1: As given by the following $h_1 = \frac{X}{\rho_c g}$ (m) Where: X: The lesser of the following X_1 and X_2, however, it may be taken as X_1 using perm = 0 for steel mill products: $X_1 = \frac{Z+\rho g(E-h_f)}{1+\frac{\rho}{\rho_C}(perm-1)}$ (kN/m^2) $X_2 = Z + \rho g(E - h_f perm)$ (kN/m^2) Where: ρ: Sea water density; 1.025 (t/m^3) g: Acceleration due to gravity; 9.81 (m/s^2) E: $d_f - 0.1D$ (m) d_f: As specified in **31B.4.2**	Wording correction

	h_f: As specified in **31B.4.2** $perm$: Permeability of cargo as specified in **31A.1.2~~-1(2~~(7)** is to be taken as 0 for steel mill products. Z: The lesser of Z_1 and Z_2 given by the following: $Z_1 = \frac{C_h}{A_{DB,h}} (kN/m^2)$ $Z_2 = \frac{C_e}{A_{DB,e}} (kN/m^2)$ C_h, C_e: As specified in **31B.4.3** $A_{DB,h}, A_{DB,e}$: As given by the following: $A_{DB,h} = \sum_{i=1}^{n} S_i \cdot B_{DB,i} (m^2)$ $A_{DB,e} = \sum_{i=1}^{n} S_i \cdot (B_{DB} - S_l) (m^2)$ n: Numbers of floors between stools (or transverse bulkheads, if no stool fitted) S_i: Space (m) of i-th floor $B_{DB,i}$: $B_{DB} - S_l$ (m), for floors whose shear strength is calculated by S_{f1} in **31B.4.3-5.** $B_{DB,i}$: $B_{DB,h}$ (m), for floors whose shear strength is calculated by S_{f2} in **31B.4.3-5.** B_{DB}: Breadth (m) of double bottom between hoppers (See **Fig. C31A.4.2**) $B_{DB,h}$: Distance (m) between the two considered openings (See **Fig.**	h_f: As specified in **31B.4.2** $perm$: Permeability of cargo as specified in **31A.1.2-1(2)** is to be taken as 0 for steel mill products. Z: The lesser of Z_1 and Z_2 given by the following: $Z_1 = \frac{C_h}{A_{DB,h}} (kN/m^2)$ $Z_2 = \frac{C_e}{A_{DB,e}} (kN/m^2)$ C_h, C_e: As specified in **31B.4.3** $A_{DB,h}, A_{DB,e}$: As given by the following: $A_{DB,h} = \sum_{i=1}^{n} S_i \cdot B_{DB,i} (m^2)$ $A_{DB,e} = \sum_{i=1}^{n} S_i \cdot (B_{DB} - S_l) (m^2)$ n: Numbers of floors between stools (or transverse bulkheads, if no stool fitted) S_i: Space (m) of i-th floor $B_{DB,i}$: $B_{DB} - S_l$ (m), for floors whose shear strength is calculated by S_{f1} in **31B.4.3-5.** $B_{DB,i}$: $B_{DB,h}$ (m), for floors whose shear strength is calculated by S_{f2} in **31B.4.3-5.** B_{DB}: Breadth (m) of double bottom between hoppers (See **Fig. C31A.4.2**) $B_{DB,h}$: Distance (m) between the two considered openings (See **Fig.**	

C31A.4.2) S_l: Spacing (m) of double bottom longitudinals adjacent to hoppers	**C31A.4.2**) S_l: Spacing (m) of double bottom longitudinals adjacent to hoppers	

Rules for the survey and construction of steel ships Part C Part 1 Annex 1.1 An1 An1.3.1-2

Correction	Present	Note
1 Reduction of scantlings of members and Equipment of ships to be classed for *Coasting Service* ((1) to (9) are omitted.) **2** Reduction of scantlings of members and equipment of ships to be classed for *Smooth Water Service* ((1) to (5) are omitted.) (6) Equipment is to be accordance with the requirements in **-1(3)** and **(4)**. However, the equipment letter in **Table CS23.1, Part CS** may be downgraded one rank from the requirements in **23.1.2, Part CS**. ((7) to (11) are omitted.) (-3 to -7 are omitted.)	**1** Reduction of scantlings of members and Equipment of ships to be classed for *Coasting Service* ((1) to (9) are omitted.) **2** Reduction of scantlings of members and equipment of ships to be classed for *Smooth Water Service* ((1) to (5) are omitted.) (6) Equipment is to be accordance with the requirements in **-1(3)** and **(4)**. However, the equipment letter in **Table CS23.1**, **Part CS** may be downgraded one rank from the requirements in **23.1.2**. ((7) to (11) are omitted.) (-3 to -7 are omitted.)	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.2.1.4-1

Correction	Present	Note
1 For ships in the following **(1)** to **(4)** to satisfy the applicable damage stability requirements, watertight hold bulkheads are to be fitted at reasonable intervals, in addition to the watertight bulkheads specified in **2.2.1.1** to **2.2.1.3**: (1) Ships complying with the requirements in **2.3** (including ships specified in **2.3.1.1(1)** to **(3)**) (2) Tankers in compliance with the requirements of **3.2.2, Part 3 of the** ~~**RULES FOR MARINE POLLUTION PREVENTION SYSTEMS**~~ **Rules for Marine Pollution Prevention Systems** (3) Ships carrying liquefied gases in bulk or ships carrying dangerous chemicals in bulk (4) Ships in compliance with the requirements in **An2.1,** ~~**Part 2-2, Annex 1.1 "ADDITIONAL REQUIREMENTS FOR BULK CARRIERS UNDER SOLAS CHAPTER XII"**~~ **Annex 1.1, Part 2-2 "Additional Requirements for Bulk Carriers under SOLAS Chapter XII"**	**1** For ships in the following **(1)** to **(4)** to satisfy the applicable damage stability requirements, watertight hold bulkheads are to be fitted at reasonable intervals, in addition to the watertight bulkheads specified in **2.2.1.1** to **2.2.1.3**: (1) Ships complying with the requirements in **2.3** (including ships specified in **2.3.1.1(1)** to **(3)**) (2) Tankers in compliance with the requirements of **3.2.2, Part 3 of the RULES FOR MARINE POLLUTION PREVENTION SYSTEMS** (3) Ships carrying liquefied gases in bulk or ships carrying dangerous chemicals in bulk (4) Ships in compliance with the requirements in **An2.1, Part 2-2, Annex 1.1 "ADDITIONAL REQUIREMENTS FOR BULK CARRIERS UNDER SOLAS CHAPTER XII"**	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.2.1.4-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table 2.2.1-1 Number of Watertight Bulkheads
<table>
<tr><th colspan="2">L_C (<i>m</i>)</th><th rowspan="2">Total number of watertight bulkheads</th></tr>
<tr><th>not less than</th><th>less than</th></tr>
<tr><td>90</td><td>102</td><td>5</td></tr>
<tr><td>102</td><td>123</td><td>6</td></tr>
<tr><td>123</td><td>143</td><td>7</td></tr>
<tr><td>143</td><td>165</td><td>8</td></tr>
<tr><td>165</td><td>186</td><td>9</td></tr>
<tr><td>186</td><td>200</td><td>The number of bulkheads arranged in accordance with Notes (1) and (2)</td></tr>
<tr><td>200</td><td></td><td>The number of bulkheads arranged in accordance with Note (2)</td></tr>
<tr><td colspan="3">(Notes)
(1) The ship has sufficient transverse strength of the hull.
(2) The final waterline does not exceed the upper surface of the bulkhead deck at the side of the ship even after any compartment, except the engine room, has been flooded under the load condition corresponding to the summer load water line. The permeability used in flooding calculations is to be in accordance with Tables 2.2.1-2 or 2.2.1-3.</td></tr>
</table>
</td>
<td>
Table 2.2.1-1 Number of Watertight Bulkheads
<table>
<tr><th colspan="2">L_C (<i>m</i>)</th><th rowspan="2">Total number of watertight bulkheads</th></tr>
<tr><th>not less than</th><th>less than</th></tr>
<tr><td>90</td><td>102</td><td>5</td></tr>
<tr><td>102</td><td>123</td><td>6</td></tr>
<tr><td>123</td><td>143</td><td>7</td></tr>
<tr><td>143</td><td>165</td><td>8</td></tr>
<tr><td>165</td><td>186</td><td>9</td></tr>
<tr><td>186</td><td>200</td><td>The number of bulkheads arranged in accordance with Notes (1) and (2)</td></tr>
<tr><td>200</td><td></td><td>The number of bulkheads arranged in accordance with Note (2)</td></tr>
<tr><td colspan="3">(Notes)
(1) The ship has sufficient transverse strength of the hull.
(2) The final waterline does not exceed the upper surface of the bulkhead deck at the side of the ship even after any compartment, except the engine room, has been flooded under the load condition corresponding to the summer load water line. The permeability used in flooding calculations is to be in accordance with Table 2.2.1-2 or 2.2.1-3.</td></tr>
</table>
</td>
<td>Wording correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.3.2.1-12

Correction	Present	Note
12 In setting the trim and G_0M used to calculate the subdivision index, reference is also to be made to **1.3.10-11** and **-12, Annex U1.2.1 “GUIDANCE FOR STABILITY INFORMATION FOR MASTER” “Guidance for Stability Information for Master”, Part U of the Guidance**.	**12** In setting the trim and G_0M used to calculate the subdivision index, reference is also to be made to **1.3.10-11** and **-12, Annex U1.2.1 “GUIDANCE FOR STABILITY INFORMATION FOR MASTER”, Part U of the Guidance**.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.2.2.1

Correction	Present	Note
1 The steels used for hull structures are to be of the grades provided in **Part K** in accordance with the requirements given in **Tables 3.2.2-1** and **3.2.2-2**. In applying these requirements *KB*, *KD* or *KE* may be substituted for *KA*; *KD* or *KE* for *KB*; *KE* for *KD*; *KD*32, *KE*32 or *KF*32 for *KA*32; *KE*32 or *KF*32 for *KD*32; *KF*32 for *KE*32; *KD*36, *KE*36 or *KF*36 for *KA*36; *KE*36 or *KF*36 for *KD*36; and *KF*36 for *KE*36; *KD*40, *KE*40 or *KF*40 for *KA*40; *KE*40 or *KF*40 for *KD*40; *KF*40 for *KE*40, respectively. (-2 and -7 are omitted.) **8** Where steel to be used has properties other than specified in **Tables 3.2.2-1** or **3.2.2-2**, the application of those steels is to be specially considered based on their specification and properties which are to be submitted to the Society for approval.	**1** The steels used for hull structures are to be of the grades provided in **Part K** in accordance with the requirements given in **Table 3.2.2-1** and **3.2.2-2**. In applying these requirements *KB*, *KD* or *KE* may be substituted for *KA*; *KD* or *KE* for *KB*; *KE* for *KD*; *KD*32, *KE*32 or *KF*32 for *KA*32; *KE*32 or *KF*32 for *KD*32; *KF*32 for *KE*32; *KD*36, *KE*36 or *KF*36 for *KA*36; *KE*36 or *KF*36 for *KD*36; and *KF*36 for *KE*36; *KD*40, *KE*40 or *KF*40 for *KA*40; *KE*40 or *KF*40 for *KD*40; *KF*40 for *KE*40, respectively. (-2 and -7 are omitted.) **8** Where steel to be used has properties other than specified in **Table 3.2.2-1** or **3.2.2-2**, the application of those steels is to be specially considered based on their specification and properties which are to be submitted to the Society for approval.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.3.5.2-2

Correction	Present	Note
1 Paints containing greater than 10 % aluminium by weight in the dry film are not to be used in hazardous areas defined in **4.2.3-1** or **-2, Part H** in tankers and ships carrying dangerous chemicals in bulk intended to carry crude oil and petroleum products having a flash point not exceeding 60 °C and a Reid vapour pressure below atmospheric pressure or other liquid cargoes having similar fire hazards. **2** Cargo holds of bulk carriers are to comply with the following **(1)** and **(2)**: (1) Where ships are subject to the requirements of **Part 2-2**, structural members, hatch coamings and hatch covers in cargo holds are to have an efficient protective coating (epoxy coating or equivalent) applied in accordance with the manufacturer's recommendation within the range indicated below (*See* **Fig. ~~C~~3.3.5-1**). In the selection of the coating, due consideration is to be given by the owner to cargo conditions expected in service. (a) All internal surfaces of cargo holds, excluding the flat tank top areas and the sloping plating of the hopper tanks approximately 300 *mm* below the side shell frame and brackets (b) All internal and external surfaces of hatch coamings and hatch covers (2) Where ships are subject to the requirements of **Parts 2-2**, **2-3** and **2-4**, omission of painting is allowed to those members such as inner bottom plating, slant plating of bilge hopper and slant plate of lower stools of transverse watertight bulkheads. However, omission of painting is not accepted for areas within the extent of painting specified in **-2(1)** above.	**1** Paints containing greater than 10 % aluminium by weight in the dry film are not to be used in hazardous areas defined in **4.2.3-1** or **-2, Part H** in tankers and ships carrying dangerous chemicals in bulk intended to carry crude oil and petroleum products having a flash point not exceeding 60 °C and a Reid vapour pressure below atmospheric pressure or other liquid cargoes having similar fire hazards. **2** Cargo holds of bulk carriers are to comply with the following **(1)** and **(2)**: (1) Where ships are subject to the requirements of **Part 2-2**, structural members, hatch coamings and hatch covers in cargo holds are to have an efficient protective coating (epoxy coating or equivalent) applied in accordance with the manufacturer's recommendation within the range indicated below (*See* **Fig. C3.3.5-1**). In the selection of the coating, due consideration is to be given by the owner to cargo conditions expected in service. (a) All internal surfaces of cargo holds, excluding the flat tank top areas and the sloping plating of the hopper tanks approximately 300 *mm* below the side shell frame and brackets (b) All internal and external surfaces of hatch coamings and hatch covers (2) Where ships are subject to the requirements of **Parts 2-2**, **2-3** and **2-4**, omission of painting is allowed to those members such as inner bottom plating, slant plating of bilge hopper and slant plate of lower stools of transverse watertight bulkheads. However, omission of painting is not accepted for areas within the extent of painting specified in **-2(1)** above.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.8.3.1-2

Correction	Present	Note
1 A loading computer system is a system, which is either analogue or digital, by means of which it can be easily and quickly ascertained that, at specified read-out points for the ship, relevant operational limitations, such as the still water vertical bending moments and shear forces, where applicable, in any load or ballast condition do not exceed the specified permissible values. An approved loading instrument cannot replace an approved loading manual. **2** The loading instrument is to be capable of performing its intended functions in the installed environment. A loading instrument complying with **Part 7**~~, “~~ **of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**~~”~~ is recommended. **3** An operation manual for the loading instrument is to be provided on board the ship. The operation manual and the instrument input and output are to be prepared in a language understood by the intended users, including the master of the ship. If this language is not English, a translation into English is to be included.	**1** A loading computer system is a system, which is either analogue or digital, by means of which it can be easily and quickly ascertained that, at specified read-out points for the ship, relevant operational limitations, such as the still water vertical bending moments and shear forces, where applicable, in any load or ballast condition do not exceed the specified permissible values. An approved loading instrument cannot replace an approved loading manual. **2** The loading instrument is to be capable of performing its intended functions in the installed environment. A loading instrument complying with **Part 7, “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”** is recommended. **3** An operation manual for the loading instrument is to be provided on board the ship. The operation manual and the instrument input and output are to be prepared in a language understood by the intended users, including the master of the ship. If this language is not English, a translation into English is to be included.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Annex 3.2 An2 An2.1.1-1

Correction	Present	Note
1 All *FRP* products are to be approved by the Society in accordance with **Chapter 9, Part 2 of the** ~~**“GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE”**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** and are to be adequate for the service conditions. **2** All *FRP* products are to be resistant to any substances they are expected to be exposed to during service.	**1** All *FRP* products are to be approved by the Society in accordance with **Chapter 9, Part 2 of the “GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE”** and are to be adequate for the service conditions. **2** All *FRP* products are to be resistant to any substances they are expected to be exposed to during service.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Annex 3.2 An2 An2.2.1

Correction	Present	Note
1 The requirements for fire integrity, fire retardance, flame spread and surface flammability as well as smoke generation for *FRP* products are, in principle, to be in accordance with those given in **Table An1**. If an *FRP* product falls under multiple classifications of service in **Table An1**, it is to satisfy the most stringent requirements. **2** Subdivisions other than those specified in **Table An1** are to be as deemed appropriate by the Society. **3** Where the fire integrity test and the flame spread test have been approved as the approval tests specified in **Chapter 9, Part 2 of the** ~~**“GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE”**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** in accordance with *ASTM F* 3059-14, notwithstanding **Table An1**, applicable requirements for *FRP* products can be in accordance with ***ASTM F* 3059-14**. **4** Notwithstanding the requirements in **-1** and **-3** above, *FRP* products used for safe access to bows specified in **14.13.2** are to be tested and approved by the Society in accordance with the fire integrity test specified in **9.4.2-1(4), Chapter 9, Part 2 of the** ~~***“GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE,”***~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use,** the surface flammability test specified in **9.4.2-3(2)**, the smoke generation test specified in **9.4.2-4(2)**, and the toxicity test specified in **9.4.2-5(1)**. **5** In case of use in inspection equipment specified in **14.16**, *FRP* products are to be used for ladders, handrails, steps and small platforms because they are not considered to be part of the hull construction.	**1** The requirements for fire integrity, fire retardance, flame spread and surface flammability as well as smoke generation for *FRP* products are, in principle, to be in accordance with those given in **Table An1**. If an *FRP* product falls under multiple classifications of service in **Table An1**, it is to satisfy the most stringent requirements. **2** Subdivisions other than those specified in **Table An1** are to be as deemed appropriate by the Society. **3** Where the fire integrity test and the flame spread test have been approved as the approval tests specified in **Chapter 9, Part 2 of the “GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE”** in accordance with *ASTM F* 3059-14, notwithstanding **Table An1**, applicable requirements for *FRP* products can be in accordance with ***ASTM F* 3059-14**. **4** Notwithstanding the requirements in **-1** and **-3** above, *FRP* products used for safe access to bows specified in **14.13.2** are to be tested and approved by the Society in accordance with the fire integrity test specified in **9.4.2-1(4), Chapter 9, Part 2 of the “GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE,”** the surface flammability test specified in **9.4.2-3(2)**, the smoke generation test specified in **9.4.2-4(2)**, and the toxicity test specified in **9.4.2-5(1)**.	Wording correction

6 In cases where *FRP* products are installed in the hazardous areas specified in **4.3** and **4.7, Part H**, the risk of electrical charge of the *FRP* is to be taken into account. In cases where *FRP* products are installed in cargo tanks, fuel oil tanks, or the areas deemed necessary by the Society, such *FRP* products are to have no electrostatic properties. Generally, in cases where comb-like gratings of personnel walkways are installed in areas except for those mentioned above, *FRP* products that have electrostatic properties may be used. Here, "no electrostatic properties" means that the earth resistance of these products at any point is not greater than 1 *MΩ*.	**5** In case of use in inspection equipment specified in **14.16**, *FRP* products are to be used for ladders, handrails, steps and small platforms because they are not considered to be part of the hull construction. **6** In cases where *FRP* products are installed in the hazardous areas specified in **4.3** and **4.7, Part H**, the risk of electrical charge of the *FRP* is to be taken into account. In cases where *FRP* products are installed in cargo tanks, fuel oil tanks, or the areas deemed necessary by the Society, such *FRP* products are to have no electrostatic properties. Generally, in cases where comb-like gratings of personnel walkways are installed in areas except for those mentioned above, *FRP* products that have electrostatic properties may be used. Here, "no electrostatic properties" means that the earth resistance of these products at any point is not greater than 1 *MΩ*.	

Rules for the survey and construction of steel ships Part C Part 1 Annex 3.2 An2 Table An1

Correction	Present	Note
		Wording correction

Table An1 Applicable Requirements for FRP Products

Location	Service	Fire Integrity	Fire Retardance	Flame Spread and Surface Flammability	Smoke Generation	Toxicity
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms, or access areas	L_1	○	○	—	—
Cargo Holds	Walkways or areas that may be used for escape, or access for firefighting, emergency operation, or rescue	V_1	○	—	—	—
	Walkways, catwalks, ladders, platforms, or access areas other than those described above	—	○	—	—	—
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms, or access areas	*See* **Note (3)**	○	—	—	—
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platorms, or access areas	*See* **Note (3)**	○	—	—	—
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms, or access areas	*See* **Note (4)**	○	—	—	—
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms, or access areas	*See* **Note (4)**	○	—	—	—
Accommodation, service spaces and control rooms	All personnel walkways, catwalks, ladders, platforms, or access areas	L_1	○	○	○	—
Lifeboat embarkation or safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms, or access areas	L_2	○	—	—	—
Open decks or semi-enclosed areas	Walkways or areas which may be used for escape or access for firefighting, emergency operation, or rescue(6)	L_3(5)	○	—	—	—
	Walkways, catwalks, ladders, platforms, or access areas other than those described above	—	○	—	—	—

(Notes)

(1) Symbols

○: The fire retardance test, flame spread and surface flammability test, smoke generation test and toxicity test specified in **9.4.2, Chapter 9, Part 2** of the ~~**"GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE"**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** are to be satisfied.

–: Not applicable

(2) Abbreviations

*L*1: *L*1 is the abbreviation for Fire Integrity Level 1. *FRP* products complying with Fire Integrity Level 1 are those specified in **9.1.2(4), Chapter 9, Part 2** of the ~~**"GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE"**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.

*L*2: *L*2 is the abbreviation for Fire Integrity Level 2. *FRP* products complying with Fire Integrity Level 2 are those specified in **9.1.2(3), Chapter 9, Part 2** of the ~~**"GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE"**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.

*L*3: *L*3 is the abbreviation for Fire Integrity Level 3. *FRP* products complying with Fire Integrity Level 3 are those specified in **9.1.2(2), Chapter 9, Part 2** of the ~~**"GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE"**~~ **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**.

(3) Fire integrity is not required in principle. However, if these spaces are normally entered and exited when underway, *FRP* of *L*1 is to be applied.

(4) Fire integrity is not required in principle. However, if these spaces are normally entered and exited when underway, *FRP* of *L*3 is to be applied.

(5) Vessels fitted with fixed foam fire-extinguishing systems and fixed dry chemical powder type extinguishing systems on deck require *FRP* of *L*1 integrity for foam system operational areas and access routes.

(6) Excluding the safe access to the bow specified in **14.13.2**.

Rules for the survey and construction of steel ships Part C Part 1 Annex 3.8 An1 An1.2.2-1

Correction	Present	Note
1 The following precautions regarding loading are to be described in the loading manual: (1) For the standard loading conditions, the results of the general hull strength analysis, including the primary supporting structure strength and local strength and the operational precautions based on the analysis results. (2) For loading conditions different from the standard loading conditions, precautions regarding the prevention of excessive stress on the hull (3) Precautions regarding weight shifting involving the transfer of ballast water and cargo under the standard loading conditions or any other loading conditions (4) Precautions related to the filling level of ballast tanks as specified in **An~~1.2.1-2~~1.1.2-2, Annex 4.3 "Guideline for the Assessment of Longitudinal Strength Relating to Ballasting/Deballasting"**. **2** Although the specific content may differ depending on the ship, a loading manual is generally to be prepared while carefully noting the following points: (1) The minimum bow draught required for the structural strength of the strengthened bottom forward (2) Limitation to the apparent specific gravities of cargoes in cargo holds and the loading heights therein (3) Acceptability of alternate loading and two-port loading, etc. (4) Limitation to liquid levels in tanks (5) Limitation to loading with respect to local strength and primary supporting structure strength (e.g. limitations on the maximum design cargo weight on deck or hatch covers) (6) Limitation to loading with respect to longitudinal hull	**1** The following precautions regarding loading are to be described in the loading manual: (1) For the standard loading conditions, the results of the general hull strength analysis, including the primary supporting structure strength and local strength and the operational precautions based on the analysis results. (2) For loading conditions different from the standard loading conditions, precautions regarding the prevention of excessive stress on the hull (3) Precautions regarding weight shifting involving the transfer of ballast water and cargo under the standard loading conditions or any other loading conditions (4) Precautions related to the filling level of ballast tanks as specified in **An1.2.1-2, Annex 4.3 "Guideline for the Assessment of Longitudinal Strength Relating to Ballasting/Deballasting"**. **2** Although the specific content may differ depending on the ship, a loading manual is generally to be prepared while carefully noting the following points: (1) The minimum bow draught required for the structural strength of the strengthened bottom forward (2) Limitation to the apparent specific gravities of cargoes in cargo holds and the loading heights therein (3) Acceptability of alternate loading and two-port loading, etc. (4) Limitation to liquid levels in tanks (5) Limitation to loading with respect to local strength and primary supporting structure strength (e.g. limitations on the maximum design cargo weight on deck or hatch covers) (6) Limitation to loading with respect to longitudinal hull	Reference correction

strength (7) Precautions for ballasting/deballasting, dry-docking and the like	strength (7) Precautions for ballasting/deballasting, dry-docking and the like	

Rules for the survey and construction of steel ships Part C Part 1 Chapter 5 5.1.2.1-1

Correction	Present	Note
1 Longitudinal strength of ships are to be assessed in accordance with the requirements specified in this Chapter. However, container carriers subject to **Part 2-1** are to be assessed in accordance with the requirements in ~~**Part 2-1, Chapter 5**~~ **Chapter 5, Part 2-1**. **2** Ships to which direct application of the requirements in this Chapter is deemed unreasonable and the handling of such ships are to be in accordance with **(1)** and **(2)** below: (1) For ships whose C_{B1} value is less than 0.65, the permissible vertical bending stress σ_{perm} specified in **5.2.1.2** is to be modified by division by the coefficient determined by **(a)** and **(b)** below according to the C_{B1} value: (a) Where $C_{B1} \leq 0.60$: 1.05 (b) Where $0.60 < C_{B1} < 0.65$: $1.65 - C_{B1}$ (2) In addition to **(1)**, ships of special form or construction, ships with special loading requirements, etc. are to be in accordance with the discretion of the Society.	**1** Longitudinal strength of ships are to be assessed in accordance with the requirements specified in this Chapter. However, container carriers subject to **Part 2-1** are to be assessed in accordance with the requirements in **Part 2-1, Chapter 5**. **2** Ships to which direct application of the requirements in this Chapter is deemed unreasonable and the handling of such ships are to be in accordance with **(1)** and **(2)** below: (1) For ships whose C_{B1} value is less than 0.65, the permissible vertical bending stress σ_{perm} specified in **5.2.1.2** is to be modified by division by the coefficient determined by **(a)** and **(b)** below according to the C_{B1} value: (a) Where $C_{B1} \leq 0.60$: 1.05 (b) Where $0.60 < C_{B1} < 0.65$: $1.65 - C_{B1}$ (2) In addition to **(1)**, ships of special form or construction, ships with special loading requirements, etc. are to be in accordance with the discretion of the Society.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Annex 5.3 An3 An3.1.1

Correction	Present	Note
The indeterminate shear flow is working around the closed cells and can be considered as a constant value within the same closed cell. The following system of equation for determination of indeterminate shear flows can be developed. In the equations, contour integrations of several parameters around all closed cells are performed. $q_{Ic}\oint_{c}\frac{1}{t}ds-\sum_{m=i}^{Nw}q_{Im}\oint_{c\&m}\frac{1}{t}ds=-\oint_{c}\frac{q_D}{t}ds$ Nw: Number of common walls shared by cell *c* and all other cells. c,m: Common wall shared by cells *c* and *m.* q_{Ic}, q_{Im}: Indeterminate shear flow around the closed cell *c* and *m*, respectively, in *N/mm*. Under the assumption of the assembly of line segments shown in **Fig. An 1** and a constant plate thickness of each line segment, the above equation can be expressed as follows: $q_{Ic}\sum_{j=1}^{Nc}(\frac{l}{t})_j-\sum_{m=1}^{Nw}\left\{q_{Im}\left[\sum_{j=1}^{Nm}\left(\frac{l}{t}\right)_j\right]_m\right\}=-\sum_{j=1}^{Nc}\phi_j$ $\phi_j=\left[-\frac{l^2}{6I_y}(z_k+2z_i-3z_n)\times10^{-3}+\frac{l}{t}q_{Di}\right]_j$ Nc: Number of line segments in cell *c*. Nm: Number of line segments on the common wall shared by cells *c* and *m*. q_{Di}: Determinate shear flow, in *N/mm*, calculated according to **An2.1.1**. The difference in the directions of running coordinates specified in **An2.1.1** is to be considered.	The indeterminate shear flow is working around the closed cells and can be considered as a constant value within the same closed cell. The following system of equation for determination of indeterminate shear flows can be developed. In the equations, contour integrations of several parameters around all closed cells are performed. $q_{Ic}\oint_{c}\frac{1}{t}ds-\sum_{m=i}^{Nw}q_{Im}\oint_{c\&m}\frac{1}{t}ds=-\oint_{c}\frac{q_D}{t}ds$ Nw: Number of common walls shared by cell *c* and all other cells. c,m: Common wall shared by cells *c* and *m.* q_{Ic}, q_{Im}: Indeterminate shear flow around the closed cell *c* and *m*, respectively, in *N/mm*. Under the assumption of the assembly of line segments shown in **Fig. 1** and a constant plate thickness of each line segment, the above equation can be expressed as follows: $q_{Ic}\sum_{j=1}^{Nc}(\frac{l}{t})_j-\sum_{m=1}^{Nw}\left\{q_{Im}\left[\sum_{j=1}^{Nm}\left(\frac{l}{t}\right)_j\right]_m\right\}=-\sum_{j=1}^{Nc}\phi_j$ $\phi_j=\left[-\frac{l^2}{6I_y}(z_k+2z_i-3z_n)\times10^{-3}+\frac{l}{t}q_{Di}\right]_j$ Nc: Number of line segments in cell *c*. Nm: Number of line segments on the common wall shared by cells *c* and *m*. q_{Di}: Determinate shear flow, in *N/mm*, calculated according to **An2.1.1**. The difference in the directions of running coordinates specified in **An2.1.1** is to be considered.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 7 7.4.2.1

Correction	Present	Note
For members subject to axial compressive loads, such as pillars or struts, their sectional area is to be not less than that obtained from the following formula: $A_{n50} = C_S \frac{F}{\sigma_{cr}} \times 10$ (cm^2) C_S: Safety factor to be taken as 1.4 However, when struts are placed between longitudinals in double bottom and double side, C_S is to be taken as 2.8. F: Compressive load (kN) specified in each requirement. However, the compressive load may be obtained by direct strength analysis. σ_{cr}: Buckling strength of beams and pillars or such members as struts to be taken as follows: For $\sigma_E > \frac{\sigma_Y}{2}$: $\sigma_{cr} = \sigma_Y \left(1 - \frac{\sigma_Y}{4\sigma_E}\right)$ (N/mm^2) For $\sigma_E \le \frac{\sigma_Y}{2}$: $\sigma_{cr} = \sigma_E$ (N/mm^2) $\sigma_E = C_{BC}\pi^2 E \left(\frac{k}{l}\right)^2$ (N/mm^2) k: Minimum radius (mm) of gyration of beams and pillars or members such as struts l: Distance (mm) from the top of the inner bottom plating, deck or any other structure, to which the lower end of pillars, struts, etc., is attached, to the bottom of the ~~beam~~stiffeners or deck girder supported by the pillars, struts, etc. C_{BC}: Fixed end effect coefficient as specified in the following **i)** to **iii)**: i) For corrugated bulkheads supported at	For members subject to axial compressive loads, such as pillars or struts, their sectional area is to be not less than that obtained from the following formula: $A_{n50} = C_S \frac{F}{\sigma_{cr}} \times 10$ (cm^2) C_S: Safety factor to be taken as 1.4 However, when struts are placed between longitudinals in double bottom and double side, C_S is to be taken as 2.8. F: Compressive load (kN) specified in each requirement. However, the compressive load may be obtained by direct strength analysis. σ_{cr}: Buckling strength of beams and pillars or such members as struts to be taken as follows: For $\sigma_E > \frac{\sigma_Y}{2}$: $\sigma_{cr} = \sigma_Y \left(1 - \frac{\sigma_Y}{4\sigma_E}\right)$ (N/mm^2) For $\sigma_E \le \frac{\sigma_Y}{2}$: $\sigma_{cr} = \sigma_E$ (N/mm^2) $\sigma_E = C_{BC}\pi^2 E \left(\frac{k}{l}\right)^2$ (N/mm^2) k: Minimum radius (mm) of gyration of beams and pillars or members such as struts l: Distance (mm) from the top of the inner bottom plating, deck or any other structure, to which the lower end of pillars, struts, etc., is attached, to the bottom of the beam or deck girder supported by the pillars, struts, etc. C_{BC}: Fixed end effect coefficient as specified in the following **i)** to **iii)**: i) For corrugated bulkheads supported at	Wording correction

each end with a stool with a width exceeding 2 times the depth of the corrugation $C_{BC} = 4$ ii) For corrugated bulkheads or cross ties supported at one end with a stool with a width exceeding 2 times the depth of the corrugation $C_{BC} = 2$ iii) Other cases $C_{BC} = 1$	each end with a stool with a width exceeding 2 times the depth of the corrugation $C_{BC} = 4$ ii) For corrugated bulkheads or cross ties supported at one end with a stool with a width exceeding 2 times the depth of the corrugation $C_{BC} = 2$ iii) Other cases $C_{BC} = 1$	

Rules for the survey and construction of steel ships Part C Part 1 Chapter 9 9.5.5.1

Correction	Present	Note
The fatigue strength assessment criterion (acceptance criterion) is to be as follows: $\eta \cdot D \leq 1.0$ D : Fatigue damage obtained from **9.5.4.2** η : Correction factor of fatigue damage based on fatigue load used in the assessment, as given in **~~t~~Table 9.5.5-1**.	The fatigue strength assessment criterion (acceptance criterion) is to be as follows: $\eta \cdot D \leq 1.0$ D : Fatigue damage obtained from **9.5.4.2** η : Correction factor of fatigue damage based on fatigue load used in the assessment, as given in **table 9.5.5-1**.	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 10 Table 10.5.2-1

Correction	Present	Note
		Reference correction

Table 10.5.2-1 Upper and Lower Structures Supporting Corrugated Bulkheads

Type of corrugated bulkhead		Location	Supporting structure
Vertically corrugated bulkhead	Transverse	Lower	Floors with a thickness that is the same as that of the lower part of a corrugated bulkhead are to be arranged beneath both flanges of the corrugated bulkhead, or a floor with a thickness that is the same as that of the lower part of the corrugated bulkhead is to be arranged beneath one flange and a bracket that has the same thickness as the lower part of the corrugated bulkhead and a web depth that is not less than 0.5 times the depth of the corrugation is to be arranged beneath the other side flange of the corrugated bulkhead. (*See* **Fig. 10.5.2-~~5~~1**)
	Longitudinal	Upper	An on-deck longitudinal girder or an on-deck longitudinal with a web thickness of not less than 80 % of the thickness of the upper part of a corrugated bulkhead is to be arranged above both flanges of the corrugated bulkhead.
		Lower	Girders (centre girders or side girders) with a thickness that is the same as that of the lower part of a corrugated bulkhead are to be arranged beneath both flanges of the corrugated bulkhead, or a girder with a thickness that is the same as that of the lower part of the corrugated bulkhead is to be arranged beneath one flange of the corrugated bulkhead and an inner bottom longitudinal with a thickness that is the same as that of the lower part of the corrugated bulkhead and a web depth that is not less than 0.5 times the depth of the corrugation, or a stiffener equivalent thereto, is to be arranged beneath the other side flange of the corrugated bulkhead.
Horizontally corrugated bulkhead	Transverse	Lower	A floor with a thickness that is the same as that of the lower part of a corrugated bulkhead is to be arranged beneath the web of the corrugated bulkhead.
	Longitudinal	Upper	An on-deck girder with a thickness that is not less than 80 % of the thickness of the upper part of the corrugated bulkhead is to be arranged above the web of the corrugated bulkhead.
		Lower	A girder (centre girder or side girder) with a thickness that is the same as that of the lower part of the corrugated bulkhead is to be arranged beneath the web of the corrugated bulkhead.

Rules for the survey and construction of steel ships Part C Part 1 Chapter 10 10.6.3.5

Correction	Present	Note
The thickness of the floors in the strengthened bottom forward is to be the value determined in accordance with the following **(1)** and **(2)**, whichever is greater. (1) Value obtained by the following formula: $t_1 = \frac{1.2KPSb_1}{\sigma_Y(b_1 - d_1)}$ (*mm*) P: Slamming impact pressure (*kN/m*^{2}), which is P_{SL2B} as specified in **4.8.2.2**. S: Spacing (*m*) of floors b_1: Width (*mm)* of floor panel having a width equal to half of the spacing of the bottom longitudinals on each side of the centreline of a bottom longitudinal. (*See* **Fig. ~~12.2.5-3~~10.6.3-1**) d_1: Width (*mm*) of an opening such as a lightening hole, slot, etc. ($d_1 = d_2 + d_3$) of the floor at the depth under consideration. When a doubling plate is applied to the opening, the cross-sectional area of the doubling plate may be taken into account. (2) Value obtained by the following formula: $t_2 = 1.1 \cdot \sqrt[3]{PSb_2{}^2} \times 10^{-2}$ (*mm*) P, S: As specified in **(1)** above. b_2: Spacing (*mm*) of bottom longitudinals (*See* **Fig. 10.6.3-1**)	The thickness of the floors in the strengthened bottom forward is to be the value determined in accordance with the following **(1)** and **(2)**, whichever is greater. (1) Value obtained by the following formula: $t_1 = \frac{1.2KPSb_1}{\sigma_Y(b_1 - d_1)}$ (*mm*) P: Slamming impact pressure (*kN/m*^{2}), which is P_{SL2B} as specified in **4.8.2.2**. S: Spacing (*m*) of floors b_1: Width (*mm)* of floor panel having a width equal to half of the spacing of the bottom longitudinals on each side of the centreline of a bottom longitudinal. (*See* **Fig. 12.2.5-3**) d_1: Width (*mm*) of an opening such as a lightening hole, slot, etc. ($d_1 = d_2 + d_3$) of the floor at the depth under consideration. When a doubling plate is applied to the opening, the cross-sectional area of the doubling plate may be taken into account. (2) Value obtained by the following formula: $t_2 = 1.1 \cdot \sqrt[3]{PSb_2{}^2} \times 10^{-2}$ (*mm*) P, S: As specified in **(1)** above. b_2: Spacing (*mm*) of bottom longitudinals (*See* **Fig. 10.6.3-1**)	Reference correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 11 11.5.1.2-6

Correction	Present	Note
6 The connection of a cast steel boss and fabricated stern frame is to be in accordance with **12.2.2.~~5~~4**.	**6** The connection of a cast steel boss and fabricated stern frame is to be in accordance with **12.2.2.5**.	Reference correction

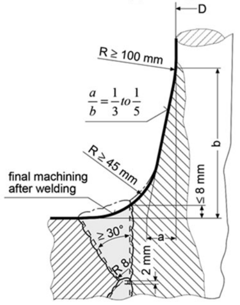
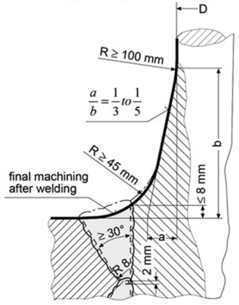
Rules for the survey and construction of steel ships Part C Part 1 Chapter 11 11.5.2.3-2

Correction	Present	Note
1 The spacing of the frames of the transverse framing system is to be as deemed appropriate by the Society. **2** The requirements in **11.2.~~3~~6.3-2** are to be referred to the construction under the bottom deck, which is to have effective stiffness. **3** Where the distance between the supporting points of the frame measured along the outer face of the frame exceeds 2.5 *m*, the scantlings of the frame are to be increased or additional side stringers, stiffening supporting members, etc. are to be provided to increase the stiffness of the side shell.	**1** The spacing of the frames of the transverse framing system is to be as deemed appropriate by the Society. **2** The requirements in **11.2.3.3-2** are to be referred to the construction under the bottom deck, which is to have effective stiffness. **3** Where the distance between the supporting points of the frame measured along the outer face of the frame exceeds 2.5 *m*, the scantlings of the frame are to be increased or additional side stringers, stiffening supporting members, etc. are to be provided to increase the stiffness of the side shell.	Reference correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 13 Table 13.2.7-1.

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">Table ~~C~~13.2.7-1. Thickness of Side Plating and Vertical Web Plates
<table>
<tr><td rowspan="2">Type of rudder</td><td colspan="2">Thickness of vertical web plates (<i>mm</i>)</td><td colspan="2">Thickness of rudder plating (<i>mm</i>)</td></tr>
<tr><td>Rudder blade without opening</td><td>Rudder blade with opening</td><td>Rudder blade without opening</td><td>Area with opening</td></tr>
<tr><td>Type <i>A</i> and <i>B</i> rudders</td><td>$1.2t_{gr}$</td><td>$1.6t_{gr}$</td><td>$1.2t_{gr}$</td><td>$1.4t_{gr}$</td></tr>
<tr><td>Type <i>C</i>, <i>D</i> and <i>E</i> rudders</td><td>$1.4t_{gr}$</td><td>$2.0t_{gr}$</td><td>$1.3t_{gr}$</td><td>$1.6t_{gr}$</td></tr>
<tr><td colspan="5">t_{gr}= thickness of the rudder plating, in <i>mm</i>, as defined in 13.2.6.1</td></tr>
</table>
</td><td>Wording correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 1 Chapter 13 Fig. 13.2.8-1

Correction	Present	Note
~~Table~~Fig. ~~C~~13.2.8-1 Welded Joint between Rudder Stock and Coupling Flange 	Table C13.2.8-1 Welded Joint between Rudder Stock and Coupling Flange 	Wording correction

Rules for the survey and construction of steel ships Part C Part 1 Chapter 14 14.16.3.4

Correction	Present	Note
1 For oil tankers: cargo oil tanks and water ballast tanks except those specified in **-2** and **-8** are to be provided with means of access in accordance with the following **(1)** to **(4)**. (1) For tanks of which the height is not less than 6 *m*, permanent means of access are to be provided in accordance with **(a)** to **(f)**. In the application of this requirements, the requirements of **(a)** to **(c)** define access to underdeck structures and the requirements of **(d)** to **(f)** define access to vertical structures. These requirements are linked to the presence of underdeck structures and transverse webs on longitudinal bulkheads. If there are no underdeck structures (deck longitudinals and deck transverses) but there are vertical structures in the cargo tank supporting transverse and longitudinal bulkheads (including brackets supporting deck transverses), in addition to access in accordance with applicable requirements of **(d)** to **(f)** access in accordance with the requirements	**1** For oil tankers: cargo oil tanks and water ballast tanks except those specified in **-2** and **-8** are to be provided with means of access in accordance with the following **(1)** to **(4)**. (1) For tanks of which the height is not less than 6 *m*, permanent means of access are to be provided in accordance with **(a)** to **(f)**. In the application of this requirements, the requirements of **(a)** to **(c)** define access to underdeck structures and the requirements of **(d)** to **(f)** define access to vertical structures. These requirements are linked to the presence of underdeck structures and transverse webs on longitudinal bulkheads. If there are no underdeck structures (deck longitudinals and deck transverses) but there are vertical structures in the cargo tank supporting transverse and longitudinal bulkheads (including brackets supporting deck transverses), in addition to access in accordance with applicable requirements of **(d)** to **(f)** access in accordance with the requirements	Reference correction

of **(a)** to **(c)** is to be provided for inspection of the upper parts of vertical structure on transverse and longitudinal bulkheads. For example, there is need to provide continuous longitudinal permanent means of access in accordance with the requirements of **(b)** when the deck longitudinals and deck transverses are fitted on the deck but supporting brackets are fitted under the deck. (a) A continuous athwartship permanent means of access is to be arranged at each transverse bulkhead on the stiffened surface, at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head. (b) At least one continuous longitudinal permanent means of access is to be provided at each side of the tank. One of these accesses is to be at a minimum of 1.6 *m* to a maximum of 6 *m* below the deck head and the other is to be at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head. (c) Access between the arrangements specified in **(a)** and **(b)** and from the main deck to either **(a)** or **(b)** is to be provided. (d) A continuous longitudinal permanent means of access integrated into the structural members on the stiffened surface of a longitudinal bulkhead, in alignment, where possible, with horizontal girders of transverse bulkheads is to be provided for access to transverse webs from the upper deck and tank bottom unless permanent fittings are installed at the uppermost platform for use as an alternative means listed in **-~~9~~10**, for inspection at intermediate heights. In addition, the following **i)** and **ii)** are to be taken into account.	of **(a)** to **(c)** is to be provided for inspection of the upper parts of vertical structure on transverse and longitudinal bulkheads. For example, there is need to provide continuous longitudinal permanent means of access in accordance with the requirements of **(b)** when the deck longitudinals and deck transverses are fitted on the deck but supporting brackets are fitted under the deck. (a) A continuous athwartship permanent means of access is to be arranged at each transverse bulkhead on the stiffened surface, at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head. (b) At least one continuous longitudinal permanent means of access is to be provided at each side of the tank. One of these accesses is to be at a minimum of 1.6 *m* to a maximum of 6 *m* below the deck head and the other is to be at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head. (c) Access between the arrangements specified in **(a)** and **(b)** and from the main deck to either **(a)** or **(b)** is to be provided. (d) A continuous longitudinal permanent means of access integrated into the structural members on the stiffened surface of a longitudinal bulkhead, in alignment, where possible, with horizontal girders of transverse bulkheads is to be provided for access to transverse webs from the upper deck and tank bottom unless permanent fittings are installed at the uppermost platform for use as an alternative means listed in **-9**, for inspection at intermediate heights. In addition, the following **i)** and **ii)** are to be taken into account.	

i) For water ballast tanks of 5 *m* or more in width, such as on an ore carrier, side shell plating is to be considered in the same way as "longitudinal bulkhead". ii) For the application of this **-1(1)(d)**, wire lift platforms or other means which can provide an equal level of safety as permanent means of access specified in **-~~9~~10(2)**, are assumed as alternative means of access. However, rafting and permanent fittings for rafting are not permitted as alternatives to the continuous longitudinal permanent means of access. (e) A transverse permanent means of access on the cross-ties providing access to the tie flaring brackets at both sides of the tank, with access from one of the longitudinal permanent means of access in **(d)** for ships having cross-ties which are not less than 6 *m* above the tank bottom. (f) An alternative means listed in **-~~9~~10** may be provided for small ships with cargo oil tanks less than 17 *m* in height as an alternative to **(d)**. (2) For tanks less than 6 *m* in height, an alternative means listed in **-~~9~~10** or portable means may be utilized in lieu of permanent means of access. (3) Notwithstanding **(1)** and **(2)** above, tanks not containing internal structures need not to be provided with permanent means of access. (4) Means of access deemed appropriate by the Society are to be provided for access to under deck structures, transverse webs and cross-ties outside the reach of permanent and/or portable means of access, as required in **(1)** and **(2)** above. The means of access generally presumes the use of boats which are to be	i) For water ballast tanks of 5 *m* or more in width, such as on an ore carrier, side shell plating is to be considered in the same way as "longitudinal bulkhead". ii) For the application of this **-1(1)(d)**, wire lift platforms or other means which can provide an equal level of safety as permanent means of access specified in **-9(2)**, are assumed as alternative means of access. However, rafting and permanent fittings for rafting are not permitted as alternatives to the continuous longitudinal permanent means of access. (e) A transverse permanent means of access on the cross-ties providing access to the tie flaring brackets at both sides of the tank, with access from one of the longitudinal permanent means of access in **(d)** for ships having cross-ties which are not less than 6 *m* above the tank bottom. (f) An alternative means listed in **-9** may be provided for small ships with cargo oil tanks less than 17 *m* in height as an alternative to **(d)**. (2) For tanks less than 6 *m* in height, an alternative means listed in **-9** or portable means may be utilized in lieu of permanent means of access. (3) Notwithstanding **(1)** and **(2)** above, tanks not containing internal structures need not to be provided with permanent means of access. (4) Means of access deemed appropriate by the Society are to be provided for access to under deck structures, transverse webs and cross-ties outside the reach of permanent and/or portable means of access, as required in **(1)** and **(2)** above. The means of access generally presumes the use of boats which are to be	

comply with **-10(4)**. **2** For oil tankers: water ballast wing tanks of less than 5 *m* width forming double side spaces and their bilge hopper sections are to be provided with means of access in accordance with the following **(1)** to **(4)**. The requirements also apply to wing tanks designed as void spaces. (1) For double side spaces above the upper knuckle point of the bilge hopper sections, permanent means of access are to be provided in accordance with **(a)** to **(e)**: (a) Where the vertical distance between the uppermost horizontal stringer and the deck head is not less than 6 *m*, one continuous longitudinal permanent means of access is to be provided for the full length of the tank with a means to allow passing through transverse webs installed at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head with a vertical access ladder at each end of the tank. Means of access specified are to be connected to an access ladder from the deck required in **14.16.3.3-1**. Where two access hatches are required, access ladders at each end of the tank are to lead to the means of access. (b) A continuous longitudinal permanent means of access integrated in the structure at a vertical distance not exceeding 6 *m* apart is to be provided. (c) Plated stringers are, as far as possible, to be in alignment with horizontal girders of transverse bulkheads. (d) Notwithstanding **(a)** and **(b)** above, the continuous permanent means of access may be a wide longitudinal, which provides access to critical details on the opposite side by means of	comply with **-10(4)**. **2** For oil tankers: water ballast wing tanks of less than 5 *m* width forming double side spaces and their bilge hopper sections are to be provided with means of access in accordance with the following **(1)** to **(4)**. The requirements also apply to wing tanks designed as void spaces. (1) For double side spaces above the upper knuckle point of the bilge hopper sections, permanent means of access are to be provided in accordance with **(a)** to **(e)**: (a) Where the vertical distance between the uppermost horizontal stringer and the deck head is not less than 6 *m*, one continuous longitudinal permanent means of access is to be provided for the full length of the tank with a means to allow passing through transverse webs installed at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck head with a vertical access ladder at each end of the tank. Means of access specified are to be connected to an access ladder from the deck required in **14.16.3.3-1**. Where two access hatches are required, access ladders at each end of the tank are to lead to the means of access. (b) A continuous longitudinal permanent means of access integrated in the structure at a vertical distance not exceeding 6 *m* apart is to be provided. (c) Plated stringers are, as far as possible, to be in alignment with horizontal girders of transverse bulkheads. (d) Notwithstanding **(a)** and **(b)** above, the continuous permanent means of access may be a wide longitudinal, which provides access to critical details on the opposite side by means of	

platforms attached as necessary on the web frames. Where the vertical opening of the web frame is located in way of the open part between the wide longitudinal and the longitudinal on the opposite side, platforms are to be provided on both sides of the web frames to allow safe passage through the web frame.	platforms attached as necessary on the web frames. Where the vertical opening of the web frame is located in way of the open part between the wide longitudinal and the longitudinal on the opposite side, platforms are to be provided on both sides of the web frames to allow safe passage through the web frame.	
(e) Notwithstanding **(a)** and **(b)** above, excess of not more than 10% may be accepted as a reasonable deviation, where deemed necessary for the integration of the permanent means of access with respect to the vertical distance of 6 *m* specified in **(a)** and **(b)** above.	(e) Notwithstanding **(a)** and **(b)** above, excess of not more than 10% may be accepted as a reasonable deviation, where deemed necessary for the integration of the permanent means of access with respect to the vertical distance of 6 *m* specified in **(a)** and **(b)** above.	
(2) For bilge hopper sections of which the vertical distance from the tank bottom to the upper knuckle point is not less than 6 *m*, one longitudinal permanent means of access is to be provided for the full length of the tank in accordance with the following **(a)** and **(b)**. It is to be accessible by a vertical permanent means of access at each end of the tank. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a bilge hopper tank located outside of the parallel part of the ship may be taken as the maximum of the clear vertical distance measured from the bottom plating to the hopper plating of the tank.	(2) For bilge hopper sections of which the vertical distance from the tank bottom to the upper knuckle point is not less than 6 *m*, one longitudinal permanent means of access is to be provided for the full length of the tank in accordance with the following **(a)** and **(b)**. It is to be accessible by a vertical permanent means of access at each end of the tank. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a bilge hopper tank located outside of the parallel part of the ship may be taken as the maximum of the clear vertical distance measured from the bottom plating to the hopper plating of the tank.	
(a) The longitudinal continuous permanent means of access may be installed at a minimum of 1.6 *m* to a maximum of 3 *m* from the top of the bilge hopper section. A platform extending from the longitudinal continuous permanent means of access in way of the web frame may be used to access the identified critical structural areas.	(a) The longitudinal continuous permanent means of access may be installed at a minimum of 1.6 *m* to a maximum of 3 *m* from the top of the bilge hopper section. A platform extending from the longitudinal continuous permanent means of access in way of the web frame may be used to access the identified critical structural areas.	
(b) Alternatively, the continuous longitudinal permanent means of access may be installed at a	(b) Alternatively, the continuous longitudinal permanent means of access may be installed at a	

minimum of 1.2 *m* below the top of the clear opening of the web ring allowing the use of portable means of access to reach identified critical structural areas. (3) Notwithstanding **(2)** above, in regards to the foremost and aftermost bilge hopper ballast tanks with raised bottoms, a combination of transverse and vertical means of access for access to the upper knuckle point for each transverse web may be accepted in place of the longitudinal permanent means of access. (4) Where the vertical distance referred to in **(2)** is less than 6 *m*, alternative means listed in **-~~9~~10** or portable means of access may be utilized in lieu of permanent means of access. To facilitate the operation of the alternative means of access, in-line openings in horizontal stringers are to be provided. The openings are to be of an adequate diameter and are to have suitable protective railings. **3** For bulk carriers, means of access to the overhead structure of the cross deck are to be fitted in accordance with the following **(1)** to **(5)**. (1) Permanent means of access are to be fitted to provide access to the overhead structure at both sides of the cross deck and in the vicinity of the centreline. Each means of access is to be accessible from the cargo hold access or directly from the main deck and installed at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck. (2) An athwartship permanent means of access fitted on the transverse bulkhead at a minimum of 1.6 *m* to a maximum of 3 *m* below the cross deck head is deemed as equivalent to **(1)**. (3) Access to the permanent means of access in **(1)** and **(2)** above may be via the upper stool.	minimum of 1.2 *m* below the top of the clear opening of the web ring allowing the use of portable means of access to reach identified critical structural areas. (3) Notwithstanding **(2)** above, in regards to the foremost and aftermost bilge hopper ballast tanks with raised bottoms, a combination of transverse and vertical means of access for access to the upper knuckle point for each transverse web may be accepted in place of the longitudinal permanent means of access. (4) Where the vertical distance referred to in **(2)** is less than 6 *m*, alternative means listed in **-9** or portable means of access may be utilized in lieu of permanent means of access. To facilitate the operation of the alternative means of access, in-line openings in horizontal stringers are to be provided. The openings are to be of an adequate diameter and are to have suitable protective railings. **3** For bulk carriers, means of access to the overhead structure of the cross deck are to be fitted in accordance with the following **(1)** to **(5)**. (1) Permanent means of access are to be fitted to provide access to the overhead structure at both sides of the cross deck and in the vicinity of the centreline. Each means of access is to be accessible from the cargo hold access or directly from the main deck and installed at a minimum of 1.6 *m* to a maximum of 3 *m* below the deck. (2) An athwartship permanent means of access fitted on the transverse bulkhead at a minimum of 1.6 *m* to a maximum of 3 *m* below the cross deck head is deemed as equivalent to **(1)**. (3) Access to the permanent means of access in **(1)** and **(2)** above may be via the upper stool.	

(4) Ships having transverse bulkheads with full upper stools with access from the main deck which allows monitoring of all framing and plates from inside do not require permanent means of access of the cross deck. (5) Alternatively, movable means of access may be utilized for access to the overhead structure of the cross deck if its vertical distance is not greater than 17 *m* above the tank top. The movable means of access need not necessarily be carried aboard the ship. **4** For cargo holds of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(6)**. (1) Permanent means of vertical access are to be provided in all cargo holds and built into the structure to allow for an inspection of a minimum of 25% of the total number of hold frames port and starboard equally distributed throughout the hold including at each end in way of transverse bulkheads. But in no circumstances is this arrangement to be less than 3 permanent means of vertical access fitted to each side (fore and aft ends of hold and mid-span). Permanent means of vertical access fitted between two adjacent hold frames is counted as access for the inspection of both hold frames. A portable means of access may be used to gain access over the sloping plating of lower hopper ballast tanks. (2) In addition to **(1)**, portable or movable means of access are to be utilized for access to the remaining hold frames up to their upper brackets and transverse bulkheads. (3) Portable or movable means of access may be utilized for access to hold frames up to their upper bracket in place of the permanent means required in **(1)**. These means of access are to be on board the ship and readily	(4) Ships having transverse bulkheads with full upper stools with access from the main deck which allows monitoring of all framing and plates from inside do not require permanent means of access of the cross deck. (5) Alternatively, movable means of access may be utilized for access to the overhead structure of the cross deck if its vertical distance is not greater than 17 *m* above the tank top. The movable means of access need not necessarily be carried aboard the ship. **4** For cargo holds of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(6)**. (1) Permanent means of vertical access are to be provided in all cargo holds and built into the structure to allow for an inspection of a minimum of 25% of the total number of hold frames port and starboard equally distributed throughout the hold including at each end in way of transverse bulkheads. But in no circumstances is this arrangement to be less than 3 permanent means of vertical access fitted to each side (fore and aft ends of hold and mid-span). Permanent means of vertical access fitted between two adjacent hold frames is counted as access for the inspection of both hold frames. A portable means of access may be used to gain access over the sloping plating of lower hopper ballast tanks. (2) In addition to **(1)**, portable or movable means of access are to be utilized for access to the remaining hold frames up to their upper brackets and transverse bulkheads. (3) Portable or movable means of access may be utilized for access to hold frames up to their upper bracket in place of the permanent means required in **(1)**. These means of access are to be on board the ship and readily	

available for use. “Readily available” means capable of being transported to location in cargo hold and safely erected by ship’s staff. (4) The width of vertical ladders for access to hold frames is to be at least 300 *mm*, measured between stringers. (5) A single vertical ladder over 6 *m* in length is acceptable for the inspection of the hold side frames in a single skin construction. (6) For double-side skin construction no vertical ladder for the inspection of the cargo hold surfaces is required. Inspection of this structure is to be provided from within the double hull space. **5** For topside tanks of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(4)**. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a topside tank is to be the vertical distance measured at the ship’s side. (1) For each topside tank of not less than 6 *m* in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.6 *m* to a maximum of 3 *m* below deck with a vertical access ladder in the vicinity of each access to that tank. (2) If no access holes are provided through the transverse webs within 600 *mm* of the tank base and the web frame rings have a web height greater than 1 *m* in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring. (3) Three permanent means of access, fitted at the end bay and middle bay of each tank, are to be provided spanning from tank base up to the intersection of the sloping plate with the hatch side girder. The existing longitudinal structure, if fitted on the sloping plate in	available for use. “Readily available” means capable of being transported to location in cargo hold and safely erected by ship’s staff. (4) The width of vertical ladders for access to hold frames is to be at least 300 *mm*, measured between stringers. (5) A single vertical ladder over 6 *m* in length is acceptable for the inspection of the hold side frames in a single skin construction. (6) For double-side skin construction no vertical ladder for the inspection of the cargo hold surfaces is required. Inspection of this structure is to be provided from within the double hull space. **5** For topside tanks of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(4)**. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a topside tank is to be the vertical distance measured at the ship’s side. (1) For each topside tank of not less than 6 *m* in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.6 *m* to a maximum of 3 *m* below deck with a vertical access ladder in the vicinity of each access to that tank. (2) If no access holes are provided through the transverse webs within 600 *mm* of the tank base and the web frame rings have a web height greater than 1 *m* in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring. (3) Three permanent means of access, fitted at the end bay and middle bay of each tank, are to be provided spanning from tank base up to the intersection of the sloping plate with the hatch side girder. The existing longitudinal structure, if fitted on the sloping plate in	

the space may be used as part of this means of access. (4) For topside tanks of which the height is less than 6 *m*, alternative means listed in **-~~9~~10** or portable means may be utilized in lieu of the permanent means of access. **6** For bilge hopper tanks of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(3)**. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a bilge hopper tank located outside of the parallel part of the vessel may be taken as the maximum of the clear vertical height measured from the bottom plating to the hopper plating of the tank. (1) For each bilge hopper tank of not less than 6 *m* in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.2 *m* below the top of the clear opening of the web ring in accordance with **(a)** to **(c)**, with a vertical access ladder in the vicinity of each access to the tank. (a) An access ladder between the longitudinal continuous permanent means of access and the bottom of the space are to be provided at each end of the tank. (b) Alternatively, the longitudinal continuous permanent means of access can be located through the upper web plating above the clear opening of the web ring, at a minimum of 1.6 *m* below the top of the bilge hopper section, when this arrangement facilitates more suitable inspection of identified structurally critical areas. An enlarged longitudinal frame can be used for the purpose of the walkway. The foremost and aftermost bilge hopper ballast tanks with raised bottom, a combination of transverse and vertical	the space may be used as part of this means of access. (4) For topside tanks of which the height is less than 6 *m*, alternative means listed in **-9** or portable means may be utilized in lieu of the permanent means of access. **6** For bilge hopper tanks of bulk carriers, means of access are to be fitted in accordance with the following **(1)** to **(3)**. Notwithstanding the requirements of **14.16.3.2(11)**, the height of a bilge hopper tank located outside of the parallel part of the vessel may be taken as the maximum of the clear vertical height measured from the bottom plating to the hopper plating of the tank. (1) For each bilge hopper tank of not less than 6 *m* in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.2 *m* below the top of the clear opening of the web ring in accordance with **(a)** to **(c)**, with a vertical access ladder in the vicinity of each access to the tank. (a) An access ladder between the longitudinal continuous permanent means of access and the bottom of the space are to be provided at each end of the tank. (b) Alternatively, the longitudinal continuous permanent means of access can be located through the upper web plating above the clear opening of the web ring, at a minimum of 1.6 *m* below the top of the bilge hopper section, when this arrangement facilitates more suitable inspection of identified structurally critical areas. An enlarged longitudinal frame can be used for the purpose of the walkway. The foremost and aftermost bilge hopper ballast tanks with raised bottom, a combination of transverse and vertical	

means of access for access to the sloping plate of hopper tank connection with side shell plating for each transverse web can be accepted in place of the longitudinal permanent means of access. (c) For double-side skin bulk carriers, the longitudinal continuous permanent means of access may be installed within 6 *m* from the knuckle point of the bilge, if used in combination with alternative methods to gain access to the knuckle point. (2) If no access holes are provided through the transverse ring webs within 600 *mm* of the tank base and the web frame rings have a web height greater than 1 *m* in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring. The height of web frame rings is to be measured in way of side shell and tank base. (3) For bilge hopper tanks of less than 6 *m* in height, alternative means listed in **-~~9~~10** or portable means may be utilized in lieu of the permanent means of access. That such means of access can be deployed and made readily available in the areas where needed is to be demonstrated. **7** For double-side skin tanks of bulk carriers, permanent means of access are to be provided in accordance with the requirements in **-1** or **-2** above, as applicable. **8** For fore peak tanks with a depth of not less than 6 *m* at the centreline of the collision bulkhead, suitable means of access are to be provided for access to critical areas such as the underdeck structure, stringers, collision bulkhead and side shell structure in accordance with the following **(1)** and **(2)**. (1) Stringers of less than 6 *m* in vertical distance from the deck head or a stringer immediately above are	means of access for access to the sloping plate of hopper tank connection with side shell plating for each transverse web can be accepted in place of the longitudinal permanent means of access. (c) For double-side skin bulk carriers, the longitudinal continuous permanent means of access may be installed within 6 *m* from the knuckle point of the bilge, if used in combination with alternative methods to gain access to the knuckle point. (2) If no access holes are provided through the transverse ring webs within 600 *mm* of the tank base and the web frame rings have a web height greater than 1 *m* in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring. The height of web frame rings is to be measured in way of side shell and tank base. (3) For bilge hopper tanks of less than 6 *m* in height, alternative means listed in **-9** or portable means may be utilized in lieu of the permanent means of access. That such means of access can be deployed and made readily available in the areas where needed is to be demonstrated. **7** For double-side skin tanks of bulk carriers, permanent means of access are to be provided in accordance with the requirements in **-1** or **-2** above, as applicable. **8** For fore peak tanks with a depth of not less than 6 *m* at the centreline of the collision bulkhead, suitable means of access are to be provided for access to critical areas such as the underdeck structure, stringers, collision bulkhead and side shell structure in accordance with the following **(1)** and **(2)**. (1) Stringers of less than 6 *m* in vertical distance from the deck head or a stringer immediately above are	

considered to provide suitable access in combination with portable means of access. (2) Where the vertical distance between the deck head and stringers, stringers or the lowest stringer and the tank bottom is not less than 6 *m*, alternative means of access listed in **-~~9~~10** is to be provided. **9** Unless stated otherwise in **14.16.3.4**, vertical ladders that are fitted on vertical structures for inspection are to comprise of one or more ladder linking platforms spaced not more than 6 *m* apart vertically and displaced to one side of the ladder. Adjacent sections of ladder are to be laterally offset from each other by at least the width of the ladder. For the purpose of complying with the above, adjacent sections of ladders are to be in accordance with **14.16.3.3-6**. **10** Where the Administration and the ship's owner deems that a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or is impracticable to fit a permanent means of access, alternative means of access deemed appropriate by the Administration and the ship's owner may be utilized in lieu of those specified in **-1** to **-8** above. In this case, the details of the alternative means of access are to be in accordance with the following **(1)** to **(4)**. (1) The means of securing the alternative equipment are to be by means of the hull structure or a part permanently attached to it. (2) Alternative means of access include, but are not limited to, such devices as: (a) Hydraulic arm fitted with a stable base (b) Wire lift platform (c) Staging (d) Rafting (e) Robot arm or remotely operated vehicle (*ROV*) (f) Portable ladders more than 5 *m* long are only to	considered to provide suitable access in combination with portable means of access. (2) Where the vertical distance between the deck head and stringers, stringers or the lowest stringer and the tank bottom is not less than 6 *m*, alternative means of access listed in **-9** is to be provided. **9** Unless stated otherwise in **14.16.3.4**, vertical ladders that are fitted on vertical structures for inspection are to comprise of one or more ladder linking platforms spaced not more than 6 *m* apart vertically and displaced to one side of the ladder. Adjacent sections of ladder are to be laterally offset from each other by at least the width of the ladder. For the purpose of complying with the above, adjacent sections of ladders are to be in accordance with **14.16.3.3-6**. **10** Where the Administration and the ship's owner deems that a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or is impracticable to fit a permanent means of access, alternative means of access deemed appropriate by the Administration and the ship's owner may be utilized in lieu of those specified in **-1** to **-8** above. In this case, the details of the alternative means of access are to be in accordance with the following **(1)** to **(4)**. (1) The means of securing the alternative equipment are to be by means of the hull structure or a part permanently attached to it. (2) Alternative means of access include, but are not limited to, such devices as: (a) Hydraulic arm fitted with a stable base (b) Wire lift platform (c) Staging (d) Rafting (e) Robot arm or remotely operated vehicle (*ROV*) (f) Portable ladders more than 5 *m* long are only to	

be utilized if fitted with a mechanical device to secure the upper end of the ladder. Where hooks for securing at the upper end of a ladder are provided as a mechanical device, such hooks are to be designed so that a movement fore/aft and sideways can be prevented at the upper end of the ladder	be utilized if fitted with a mechanical device to secure the upper end of the ladder. Where hooks for securing at the upper end of a ladder are provided as a mechanical device, such hooks are to be designed so that a movement fore/aft and sideways can be prevented at the upper end of the ladder	
(g) Other means of access, approved by and acceptable to the Society	(g) Other means of access, approved by and acceptable to the Society	
(3) With respect to the requirements of **(2)** above, the selection of an alternative means of access is to be based on the following conditions. Refer to Annex 14.16 ~~**GUIDANCE FOR DECISION OF ALTERNATIVE MEANS OF ACCESS**~~**Guidance for Decision of Alternative Means of Access** for details.	(3) With respect to the requirements of **(2)** above, the selection of an alternative means of access is to be based on the following conditions. Refer to **Annex 14.16 GUIDANCE FOR DECISION OF ALTERNATIVE MEANS OF ACCESS** for details.	
(a) Such means provide accessibility and safety equivalent to permanent means	(a) Such means provide accessibility and safety equivalent to permanent means	
(b) Such means are suitable for use in an environment of the intended spaces	(b) Such means are suitable for use in an environment of the intended spaces	
(c) Where the use of means such as *ROV* for the inspection of under deck structures, such means can be introduced into the space directly from a deck access	(c) Where the use of means such as *ROV* for the inspection of under deck structures, such means can be introduced into the space directly from a deck access	
(d) Such means comply with or are based on appropriate safety standards	(d) Such means comply with or are based on appropriate safety standards	
(e) Where the use of means other than those specified in **(2)(c)**, **(d)** or **(f)** above, such means are approved by the Administration and the ship's owner	(e) Where the use of means other than those specified in **(2)(c)**, **(d)** or **(f)** above, such means are approved by the Administration and the ship's owner	
(4) Where a boat is used as an alternative means, the following **(a)** to **(c)** is to apply.	(4) Where a boat is used as an alternative means, the following **(a)** to **(c)** is to apply.	
(a) The requirements of **14.16.2.4-5**	(a) The requirements of **14.16.2.4-5**	
(b) Rafts or boats alone may be allowed for survey	(b) Rafts or boats alone may be allowed for survey	

of the under deck areas for tanks or spaces if the depth of the webs is not more than 1.5 *m*. (c) Where the depth of the webs is more than 1.5 *m*, rafts or boats alone may be allowed only if permanent means of access are provided to allow safe entry and exit. This means either: i) Access direct from the deck via a vertical ladder and small platform approximately 2 *m* below the deck in each bay ii) Access to the deck from a longitudinal permanent platform having ladders to the deck at each end of the tank. The platform is to, for the full length of the tank, be arranged at or above the maximum water level needed for rafting of the under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 *m* from the deck plate measured at the midspan of the deck transverses and in the middle of the length of the tank. (*See* **Fig. 14.16.3-4**) A permanent means of access from the longitudinal permanent platform to the water level indicated above is to be fitted in each bay (e.g. permanent rungs on one of the deck webs inboard of the longitudinal permanent platform).	of the under deck areas for tanks or spaces if the depth of the webs is not more than 1.5 *m*. (c) Where the depth of the webs is more than 1.5 *m*, rafts or boats alone may be allowed only if permanent means of access are provided to allow safe entry and exit. This means either: i) Access direct from the deck via a vertical ladder and small platform approximately 2 *m* below the deck in each bay ii) Access to the deck from a longitudinal permanent platform having ladders to the deck at each end of the tank. The platform is to, for the full length of the tank, be arranged at or above the maximum water level needed for rafting of the under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 *m* from the deck plate measured at the midspan of the deck transverses and in the middle of the length of the tank. (*See* **Fig. 14.16.3-4**) A permanent means of access from the longitudinal permanent platform to the water level indicated above is to be fitted in each bay (e.g. permanent rungs on one of the deck webs inboard of the longitudinal permanent platform).	

Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 4 4.3.2.1-2

Correction	Present	Note
1 Where the contact point between the container cargo and the hull structure is located directly above the connection between primary supporting members and plate members, the internal pressure of the cargo may not be considered. **2** In applying **4.~~3~~4.2.4, Part 1**, the parameters (GM, z_G etc.) required to calculate the dynamic pressure due to ballast water are to be the values in the ballast condition. The same parameters are to be applied where the dynamic pressure due to liquid other than ballast water, such as the pressure due to fuel oil tank, is considered. However, the values in **Table 4.3.2-1** may be used if the parameters are not available.	**1** Where the contact point between the container cargo and the hull structure is located directly above the connection between primary supporting members and plate members, the internal pressure of the cargo may not be considered. **2** In applying **4.3.2.4, Part 1**, the parameters (GM, z_G etc.) required to calculate the dynamic pressure due to ballast water are to be the values in the ballast condition. The same parameters are to be applied where the dynamic pressure due to liquid other than ballast water, such as the pressure due to fuel oil tank, is considered. However, the values in **Table 4.3.2-1** may be used if the parameters are not available.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 4 4.4.3.2

Correction	Present	Note
For the requirements of double hull, the hydrostatic pressure at the draught specified in **4.4.3~~-~~.1** are to be considered.	For the requirements of double hull, the hydrostatic pressure at the draught specified in **4.4.3-1** are to be considered.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 5 5.5.2.8

Correction	Present	Note
1 In the cargo hold to be analysed, the evaluation stress σ_T of each element that consists of all the members subject to assessment is to satisfy the following formulae. Mean stress corresponding to standard mesh size may be use when using smaller mesh size than the standard mesh size specified in **5.5.2.3-5**. (a) For hatch side coamings (including top plates), strength decks, sheer strakes, and topmost strakes of inner hulls~~,~~/ longitudinal bulkheads $\sigma_T \leq 200/K (N/mm^2)$ (b) For bottom shell plating and bilge plating	**1** In the cargo hold to be analysed, the evaluation stress σ_T of each element that consists of all the members subject to assessment is to satisfy the following formulae. Mean stress corresponding to standard mesh size may be use when using smaller mesh size than the standard mesh size specified in **5.5.2.3-5**. (a) For hatch side coamings (including top plates), strength decks, sheer strakes, and topmost strakes of inner hulls, bulkheads $\sigma_T \leq 200/K (N/mm^2)$ (b) For bottom shell plating and bilge plating	Wording correction

$\sigma_T \leq 210/K$(*N/mm*^{2}) **2** The requirements in **-1** above need not be applied to the locations where localised stress increase is due to hatch deformation, etc. (e.g. foremost cargo holds and the fore/aft ends of engine rooms and accommodation areas) provided that fatigue strength assessments are carried out. However, the reference stress obtained in accordance with **5.5.2.7** is to be less than the specified minimum yield stress of relevant steel assigned at such locations.	$\sigma_T \leq 210/K$(*N/mm*^{2}) **2** The requirements in **-1** above need not be applied to the locations where localised stress increase is due to hatch deformation, etc. (e.g. foremost cargo holds and the fore/aft ends of engine rooms and accommodation areas) provided that fatigue strength assessments are carried out. However, the reference stress obtained in accordance with **5.5.2.7** is to be less than the specified minimum yield stress of relevant steel assigned at such locations.	

Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 5 5.4.2

Correction	Present	Note
(Omitted) M_U: The hull girder ultimate bending moment capacity (*kN-m*), which is to be obtained by the method specified in **Annex 5.4, Part 1**. However, instead of the load-end shortening curves formula $\sigma_{CR5}-\epsilon$ specified in ~~**A2**~~**An2.3.8**~~ of~~, **Annex 5.4, Part 1**, the following is to be used. $\sigma_{CR5} = \min\begin{cases} \sigma_{YP}\Phi \\ \Phi\sigma_{YP}\left[\frac{s}{l}\left(\frac{2.25}{\beta_E}-\frac{1.25}{{\beta_E}^2}\right)+0.1\left(1-\frac{s}{l}\right)\left(1+\frac{1}{{\beta_E}^2}\right)^2\right] \end{cases}$ σ_{YP}: Standard minimum yield stress of plate material (*N/mm*^{2}) Φ, β_E, s, l: As prescribed in ~~**A2**~~**An2.3.8**~~ in~~, **Annex 5.4, Part 1**. (Omitted)	(Omitted) M_U: The hull girder ultimate bending moment capacity (*kN-m*), which is to be obtained by the method specified in **Annex 5.4, Part 1**. However, instead of the load-end shortening curves formula $\sigma_{CR5}-\epsilon$ specified in **A2.3.8** of **Annex 5.4, Part 1**, the following is to be used. $\sigma_{CR5} = \min\begin{cases} \sigma_{YP}\Phi \\ \Phi\sigma_{YP}\left[\frac{s}{l}\left(\frac{2.25}{\beta_E}-\frac{1.25}{{\beta_E}^2}\right)+0.1\left(1-\frac{s}{l}\right)\left(1+\frac{1}{{\beta_E}^2}\right)^2\right] \end{cases}$ σ_{YP}: Standard minimum yield stress of plate material (*N/mm*^{2}) Φ, β_E, s, l: As prescribed in **A2.3.8** in **Annex 5.4, Part 1**. (Omitted)	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-1 Annex 5.4 An2 An2.5.3

Correction	Present	Note
Ultimate strength of torsional buckling σ_{US2i} (*N/mm*^{2}), to be taken as follows: $\sigma_{US2i} = \frac{A_P\sigma_{CP} + A_S\sigma_{C2}}{A_P + A_S}$ σ_{C2}: Critical stress (*N/mm*^{2}), equal to the following: $\sigma_{C2} = \sigma_{E2}$ for $\sigma_{E2} \le \frac{\sigma_{YS}}{2}$, $\sigma_{C2} = \sigma_{YS}\left(1 - \frac{\sigma_{YS}}{4\sigma_{E2}}\right)$ for $\sigma_{E2} > \frac{\sigma_{YS}}{2}$ σ_{E2}: Euler torsional buckling stress (*N/mm*^{2}), taken as σ_{ET} specified in ~~**A2**~~**An2.4.4**~~**-**~~**.4, Annex 5.3 "Buckling Strength Assessment Relating to Longitudinal Strength (UR S11A)"**. σ_{CP}: Buckling stress of the attached plating (*N/mm*^{2}), equal to the following: $\sigma_{CP} = \left(\frac{2.25}{\beta_E} - \frac{1.25}{{\beta_E}^2}\right)\sigma_{YP}$ for $\beta_E > 1.25$ $\sigma_{CP} = \sigma_{YP}$ for $\beta_E \le 1.25$ β_E: As defined in **An2.5.2** above.	Ultimate strength of torsional buckling σ_{US2i} (*N/mm*^{2}), to be taken as follows: $\sigma_{US2i} = \frac{A_P\sigma_{CP} + A_S\sigma_{C2}}{A_P + A_S}$ σ_{C2}: Critical stress (*N/mm*^{2}), equal to the following: $\sigma_{C2} = \sigma_{E2}$ for $\sigma_{E2} \le \frac{\sigma_{YS}}{2}$, $\sigma_{C2} = \sigma_{YS}\left(1 - \frac{\sigma_{YS}}{4\sigma_{E2}}\right)$ for $\sigma_{E2} > \frac{\sigma_{YS}}{2}$ σ_{E2}: Euler torsional buckling stress (*N/mm*^{2}), taken as σ_{ET} specified in **A2.4.4-4 Annex 5.3 "Buckling Strength Assessment Relating to Longitudinal Strength (UR S11A)"**. σ_{CP}: Buckling stress of the attached plating (*N/mm*^{2}), equal to the following: $\sigma_{CP} = \left(\frac{2.25}{\beta_E} - \frac{1.25}{{\beta_E}^2}\right)\sigma_{YP}$ for $\beta_E > 1.25$ $\sigma_{CP} = \sigma_{YP}$ for $\beta_E \le 1.25$ β_E: As defined in **An2.5.2** above.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 9 9.3.2.3

Correction	Present	Note
Members to be modelled, element types, mesh size, and notes on modelling are shown in **9.4.2.3**, ~~**Part 1,**~~ **9.4.2.4**, ~~**Part 1,**~~**9.4.2.7, Part 1** and **9.4.2.8, Part 1**, respectively.	Members to be modelled, element types, mesh size, and notes on modelling are shown in **9.4.2.3, Part 1, 9.4.2.4, Part 1,9.4.2.7, Part 1** and **9.4.2.8, Part 1**, respectively.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 4 4.8.1.1-1

Correction	Present	Note
1 Loads to be considered in hatch covers and other equipment as specified in **14.1** are to be in accordance with the requirements of **4.8.2**, instead of **4.10.2, Part 1, Part C**. However, the relevant requirements in **Part CSR-B&T** may be applied where deemed appropriate by the Society. **2** In applying the requirements of **4.8**, the position of exposed decks (Position I, Position II, etc.) is to be in accordance with the requirements specified in **1.4.3.2, Part 1**.	**1** Loads to be considered in hatch covers and other equipment as specified in **14.1** are to be in accordance with the requirements of **4.8.2**, instead of **4.10.2, Part 1**. However, the relevant requirements in **Part CSR-B&T** may be applied where deemed appropriate by the Society. **2** In applying the requirements of **4.8**, the position of exposed decks (Position I, Position II, etc.) is to be in accordance with the requirements specified in **1.4.3.2, Part 1**.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 5 5.2.1.1

Correction	Present	Note
In the assessment specified in **5.4.2.~~3~~2, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. Holds emptied when in a full load condition: $\gamma_{DB} = 1.25$ Other holds: $\gamma_{DB} = 1.15$	In the assessment specified in **5.4.2.3, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. Holds emptied when in a full load condition: $\gamma_{DB} = 1.25$ Other holds: $\gamma_{DB} = 1.15$	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.1.2-2

Correction	Present	Note
1 Unless otherwise specified, the structural scantlings specified in **14.1** are to be net scantlings which do not include any corrosion additions. **2** Required gross scantlings are not to be less than the scantlings obtained from adding the corrosion addition t_c specified in **3.~~3~~1** to the net scantlings obtained from the requirements in **3.1**. **3** According to the requirements of **14.1.1.1-2**, where applying the relevant requirements of **Part CSR-B&T**, the corrosion addition of the stiffener attached to the hatch coamings, hatch coaming stays and stays is to be read as 1.5	**1** Unless otherwise specified, the structural scantlings specified in **14.1** are to be net scantlings which do not include any corrosion additions. **2** Required gross scantlings are not to be less than the scantlings obtained from adding the corrosion addition t_c specified in **3.3** to the net scantlings obtained from the requirements in **3.1**. **3** According to the requirements of **14.1.1.1-2**, where applying the relevant requirements of **Part CSR-B&T**, the corrosion addition of the stiffener attached to the hatch coamings, hatch coaming stays and stays is to be read as 1.5	Reference correction

mm in the requirements of **Part CSR-B&T**.	*mm* in the requirements of **Part CSR-B&T**.	

Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.4.7

Correction	Present	Note
(Omitted) (4) Miscellaneous (a) The thickness of the top plating of steel hatch covers is to comply with the requirements in **14.1.4.2** and **14.6.13.1-1 (1), Part 1**. (b) The section modulus of stiffeners supported by girders and subjected to uniformly distributed loads may be obtained from finite element method, or obtained from the requirements in **14.~~2.5~~1.4.3**.	(Omitted) (4) Miscellaneous (a) The thickness of the top plating of steel hatch covers is to comply with the requirements in **14.1.4.2** and **14.6.13.1-1 (1), Part 1**. (b) The section modulus of stiffeners supported by girders and subjected to uniformly distributed loads may be obtained from finite element method, or obtained from the requirements in **14.2.5.4**.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.5.1

Correction	Present	Note
Hatch beams are to comply with the following **(1)** to **(4) in** addition to **14.6.7**, ~~**Chapter 14,**~~ **Part 1**. (1) The diameter of lightening holes provided in portable beams is to be smaller than one third of the depth of portable beams in the section. Where the loading of lumber is planned, lightening holes are recommended not to be provided. (2) The thickness of web plates is not to be less than the value obtained from the following formula. $10h + 4$ (*mm*) h: Depth (*m*) of the hatch beam at the mid-point (3) In applying **14.1.3** and **14.1.4**, the distance between the inner sides of hatchway coamings may be used as the span (l) of the portable beams.	Hatch beams are to comply with the following **(1)** to **(4) in** addition to **14.6.7, Chapter 14, Part 1**. (1) The diameter of lightening holes provided in portable beams is to be smaller than one third of the depth of portable beams in the section. Where the loading of lumber is planned, lightening holes are recommended not to be provided. (2) The thickness of web plates is not to be less than the value obtained from the following formula. $10h + 4$ (*mm*) h: Depth (*m*) of the hatch beam at the mid-point (3) In applying **14.1.3** and **14.1.4**, the distance between the inner sides of hatchway coamings may be used as the span (l) of the portable beams.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An1.

Correction	Present	Note
An1. **General** **An1.1.1** **1** This Annex applies to bulk carriers defined in **An1.2.1(1)**. **2** Except where required otherwise in this Annex, the requirements of **Parts 2-2**, **2-3**, **2-4**, **2-5** and the general requirements for construction and equipment of steel ships, as applicable, are to be applied. **3** For the application of the requirements of **An2**~~,~~.**,** **An3**~~,~~.**,** **An4.** and **An5.** for bulk carriers of double-side skin construction which have a longitudinal bulkhead located within *B*/5 or 11.5 *m*, whichever is less, inboard from the ship's side at right angled to the centreline at the assigned summer load line, cargo holds where the longitudinal bulkhead is closer to the ship's side than the required distance are to be considered flooded.	**An1** **General** **An1.1.1** **1** This Annex applies to bulk carriers defined in **An1.2.1(1)**. **2** Except where required otherwise in this Annex, the requirements of **Parts 2-2**, **2-3**, **2-4**, **2-5** and the general requirements for construction and equipment of steel ships, as applicable, are to be applied. **3** For the application of the requirements of **An2**, **An3**, **An4** and **An5** for bulk carriers of double-side skin construction which have a longitudinal bulkhead located within *B*/5 or 11.5 *m*, whichever is less, inboard from the ship's side at right angled to the centreline at the assigned summer load line, cargo holds where the longitudinal bulkhead is closer to the ship's side than the required distance are to be considered flooded.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.1.1

Correction	Present	Note
1 The requirements in **An3.** apply to vertically corrugated watertight bulkheads in cargo holds of bulk carriers, coming under the following **(1)** or **(2)**, of not less than 150 *m* in length L_f, designed to carry solid bulk cargoes having a density of not less than 1.0 t/m^3. (1) Bulk carriers of single-side skin construction (2) Bulk carriers of double-side skin construction in which any part of a longitudinal bulkhead is located within *B*/5 or 11.5 *m*, whichever is less, inboard from the ship's side at right angles to the centreline at the assigned summer load line **2** In **An3~~,~~.,** "homogeneous loading condition" means a loading condition in which the ratio between the highest and lowest filling ratio, evaluated for each hold, does not exceed 1.20, to be corrected for different cargo densities. **3** The most severe combinations of cargo induced loads and flooding loads are to be used for examining the scantlings of the bulkheads, depending on the following loading conditions included in the loading manual: In any case, the pressure due to the flood water alone needs to be considered when making calculations. Non-homogeneous loading conditions associated with multiport loading and unloading operations that occur before a homogeneous loading condition is reached does not need to be considered. (1) Homogeneous loading conditions (2) Non-homogeneous loading conditions **4** In applying the requirements of **An3~~,~~.,** holds carrying bound cargoes such as steel mill products are to be considered as empty holds for examining the scantlings of the bulkhead. (Omitted)	**1** The requirements in **An3** apply to vertically corrugated watertight bulkheads in cargo holds of bulk carriers, coming under the following **(1)** or **(2)**, of not less than 150 *m* in length L_f, designed to carry solid bulk cargoes having a density of not less than 1.0 t/m^3. (1) Bulk carriers of single-side skin construction (2) Bulk carriers of double-side skin construction in which any part of a longitudinal bulkhead is located within *B*/5 or 11.5 *m*, whichever is less, inboard from the ship's side at right angles to the centreline at the assigned summer load line **2** In **An3**, "homogeneous loading condition" means a loading condition in which the ratio between the highest and lowest filling ratio, evaluated for each hold, does not exceed 1.20, to be corrected for different cargo densities. **3** The most severe combinations of cargo induced loads and flooding loads are to be used for examining the scantlings of the bulkheads, depending on the following loading conditions included in the loading manual: In any case, the pressure due to the flood water alone needs to be considered when making calculations. Non-homogeneous loading conditions associated with multiport loading and unloading operations that occur before a homogeneous loading condition is reached does not need to be considered. (1) Homogeneous loading conditions (2) Non-homogeneous loading conditions **4** In applying the requirements of **An3**, holds carrying bound cargoes such as steel mill products are to be considered as empty holds for examining the scantlings of the bulkhead. (Omitted)	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. Table An7

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">Table An7 Static Load P_{bf-s} Acting on Vertically Corrugated Watertight Bulkhead in Cargo Hold under Flooded Conditions
<table>
<tr><th>Flooding pattern</th><th>Position of load point</th><th>static pressure P_{bf-s}(kN/m^2)</th></tr>
<tr><td rowspan="3">$z_F < z_C$</td><td>$z > z_C$</td><td>$P_{bf-s} = 0$</td></tr>
<tr><td>$z_C \geq z \geq z_F$</td><td>$P_{bf-s} = \rho_C g(z_C - z)K_{c-f}$</td></tr>
<tr><td>$z_F > z \geq h_{DB}$</td><td>$P_{bf-s} = \rho g(z_F - z) + [\rho_C(z_C - z) - \rho(1 - perm)(z_F - z)]gK_{c-f}$</td></tr>
<tr><td rowspan="3">$z_F \geq z_C$</td><td>$z > z_F$</td><td>$P_{bf-s} = 0$</td></tr>
<tr><td>$z_F \geq z \geq z_C$</td><td>$P_{bf-s} = \rho g(z_F - z)$</td></tr>
<tr><td>$z_C > z \geq h_{DB}$</td><td>$P_{bf-s} = \rho g(z_F - z) + [\rho_C - \rho(1 - perm)]g(z_C - z)K_{c-f}$</td></tr>
<tr><td colspan="3">Notes:
z_F: As specified in **Table An5**.
$z_C, h_{DB}, \rho_c, K_{c-f}$: As specified in **Table An6**.
$perm$: As specified in **An1.~~1.~~2.1(7)**.</td></tr>
</table>
</td><td>Reference correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.4.1

Correction	Present	Note
1 The section modulus at the lower end of the corrugation is to be calculated with the following considerations. (Omitted) (3) Provided that effective shedder plates as defined in **An3.5.1-5** are fitted (*See* Figs. **An3(a)** and_**An3(b)**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (*See* cross-section (1) in Figs. **An3(a)** and_**An3(b)**), but it is not to be greater than $2.5at_f$. $2.5a\sqrt{t_f t_{sh}}$ (cm^2) a : Width (m) of corrugation flange (*See* **Fig. An2 (a)**) t_{sh}: Net shedder plate thickness (mm) t_f: Net corrugation flange thickness (mm) (4) Provided that effective gusset plates as defined in **An3.5.1-6** are fitted (*See* Figs. **An4(a)** and_**An4(b)**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (*See* cross-section **(1)** in Figs. **An4(a)** and_**An4(b)**). $7h_g t_f$ (cm^2) h_g: Height of gusset plate (m), but not to be greater than $10S_{gu}/7$ (*See* Figs. **An4(a)**and_**An4(b)**) S_{gu}:Width of gusset plate (m) t_f: Net flange thickness (mm) (Omitted) **2** Provided that effective gusset plates or shedder plates as defined in **An3.5.1-5**, and **An3.5.1-6** are fitted, the section modulus of corrugations at the lower end Z_{le} is to be not	**1** The section modulus at the lower end of the corrugation is to be calculated with the following considerations. (Omitted) (3) Provided that effective shedder plates as defined in **An3.5.1-5** are fitted (*See* **Figs. An3(a)** and **An3(b)**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (*See* cross-section (1) in **Figs. An3(a)** and **An3(b)**), but it is not to be greater than $2.5at_f$. $2.5a\sqrt{t_f t_{sh}}$ (cm^2) a : Width (m) of corrugation flange (*See* **Fig. An2 (a)**) t_{sh}: Net shedder plate thickness (mm) t_f: Net corrugation flange thickness (mm) (4) Provided that effective gusset plates as defined in **An3.5.1-6** are fitted (*See* **Figs. An4(a)** and **An4(b)**), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (*See* cross-section **(1)** in **Figs. An4(a)** and **An4(b)**). $7h_g t_f$ (cm^2) h_g: Height of gusset plate (m), but not to be greater than $10S_{gu}/7$ (*See* **Figs. An4(a)**and **An4(b)**) S_{gu}:Width of gusset plate (m) t_f: Net flange thickness (mm) (Omitted) **2** Provided that effective gusset plates or shedder plates as defined in **An3.5.1-5**, and **An3.5.1-6** are fitted, the section	Reference correction

greater than Z'_{le} obtained from the following formula: $Z'_{le} = Z_g + \frac{Qh_g - 0.5h_g{}^2 S_1 P_g}{\sigma_a} \times 10^3$ (cm^3) Z_g: Section modulus (cm^3) of corrugation according to **-3** in way of the upper end of shedder plates or gusset plates Q: Shear force (kN) as specified in **An3.3.1-2**. h_g: Height (m) of shedder plates or gusset plates (*See* Figs. **An3(a)**, **An3(b)**, **An4(a)** and **An4(b~~)b)~~))** S_1: As given in **An3.2.1-2** P_g: Resultant pressure (kN/m^2) as specified in **An3.2.1-5.**, calculated in way of the middle of the shedder plates or gusset plates σ_a: Yield stress (N/mm^2) of the material to be used for the lower end of corrugations (Omitted)	modulus of corrugations at the lower end Z_{le} is to be not greater than Z'_{le} obtained from the following formula: $Z'_{le} = Z_g + \frac{Qh_g - 0.5h_g{}^2 S_1 P_g}{\sigma_a} \times 10^3$ (cm^3) Z_g: Section modulus (cm^3) of corrugation according to **-3** in way of the upper end of shedder plates or gusset plates Q: Shear force (kN) as specified in **An3.3.1-2**. h_g: Height (m) of shedder plates or gusset plates (*See* **Figs. An3(a)**, **An3(b)**, **An4(a)** and **An4(b)b)** S_1: As given in **An3.2.1-2** P_g: Resultant pressure (kN/m^2) as specified in **An3.2.1-5.**, calculated in way of the middle of the shedder plates or gusset plates σ_a: Yield stress (N/mm^2) of the material to be used for the lower end of corrugations (Omitted)	

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.5.1

Correction	Present	Note
1 The corrugation angle ϕ shown in **Fig. An2(a)** is not to be less than 55° **2** The thickness of the lower part of the corrugations calculated in **An3.4.1-1**, **-2**, **-4** and **-5** are to be maintained for a distance of not less than $0.15l$ from the inner bottom (if no lower stool is fitted) or the top of the lower stool. **3** The thickness of the middle part of the corrugations calculated in **~~A3~~An3.4.1-3**, **-4** and **-5** are to be maintained for a distance of not less than $0.3l$ from the deck (if no upper stool is fitted) or the bottom of the upper stool. (Omitted)	**1** The corrugation angle ϕ shown in **Fig. An2(a)** is not to be less than 55° **2** The thickness of the lower part of the corrugations calculated in **An3.4.1-1**, **-2**, **-4** and **-5** are to be maintained for a distance of not less than $0.15l$ from the inner bottom (if no lower stool is fitted) or the top of the lower stool. **3** The thickness of the middle part of the corrugations calculated in **A3.4.1-3**, **-4** and **-5** are to be maintained for a distance of not less than $0.3l$ from the deck (if no upper stool is fitted) or the bottom of the upper stool. (Omitted)	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An5.

Correction	Present	Note
An5. Longitudinal Strength in Flooded Condition **An5.1.1** (Omitted) **5** For bulk carriers as defined in **1.3.1 (13), Part B**, the ballast conditions specified in **-2(1)** above are to include the following conditions. Where the requirements of **An1.3.1-2** ~~and **-3** in~~ and **-3, Annex 3.8, Part 1** apply to such ships, intermediate conditions specified in **An1.3.1-2** and ~~in~~**-3, Annex 3.8, Part 1** are to be included with the conditions at departure and arrival. Where ballast conditions and/or cargo loaded conditions involve partially filled ballast tanks at departure, arrival or during intermediate conditions, these ballast tanks are to be added as either full or empty according to the requirements of **4.3.2.2-4** and **-5, Part 1**. (1) In the case of empty ballast tanks in the ballast conditions prescribed in **-2(1)** above, the tanks are to be full (with the exception of ballast holds in a normal ballast condition). **6** Where ships are assumed to have sufficient longitudinal strength in flooded conditions, the longitudinal strength evaluation may be omitted at the Society's discretion. In this case, the reason of the omission is to be clarified.	**An5 Longitudinal Strength in Flooded Condition** **An5.1.1** (Omitted) **5** For bulk carriers as defined in **1.3.1 (13), Part B**, the ballast conditions specified in **-2(1)** above are to include the following conditions. Where the requirements of **An1.3.1-2** and **-3** in **Annex 3.8** apply to such ships, intermediate conditions specified in **An1.3.1-2** and **-3** in **Annex 3.8** are to be included with the conditions at departure and arrival. Where ballast conditions and/or cargo loaded conditions involve partially filled ballast tanks at departure, arrival or during intermediate conditions, these ballast tanks are to be added as either full or empty according to the requirements of **4.3.2.2-4** and **-5, Part 1**. (1) In the case of empty ballast tanks in the ballast conditions prescribed in **-2(1)** above, the tanks are to be full (with the exception of ballast holds in a normal ballast condition). **6** Where ships are assumed to have sufficient longitudinal strength in flooded conditions, the longitudinal strength evaluation may be omitted at the Society's discretion. In this case, the reason of the omission is to be clarified.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An6. An6.2.1-5

Correction	Present	Note
5 (Omitted) ((1) to (3) are omitted.) (4) Buckling Stress (Omitted) (b) For $p \geq p_{cr}$ or $p \leq -p_{cr}$: (ommited) l: Span of stiffener (mm) However, where suitable end brackets are fitted, the span of the stiffener which is used in the formulae except α_p, m_1 and P_C may be corrected as specified in the following **i)** or **ii)** depending on the type of end bracket (*See* **Fig. ~~A13~~An13**). (Omitted)	**5** (Omitted) ((1) to (3) are omitted.) (4) Buckling Stress (Omitted) (b) For $p \geq p_{cr}$ or $p \leq -p_{cr}$: (Omitted) l: Span of stiffener (mm) However, where suitable end brackets are fitted, the span of the stiffener which is used in the formulae except α_p, m_1 and P_C may be corrected as specified in the following **i)** or **ii)** depending on the type of end bracket (*See* **Fig. A13**). (Omitted)	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-3 Chapter 4 4.5.1.1

Correction	Present	Note
Loads to be considered in hatch covers and other equipment as specified in **14.1** are to be in accordance with the requirements of **4.8**, **Part 2-2**, instead of **4.10**, **Part 1, Part C**. However, the relevant requirements in **Part CSR-B&T** may be applied where deemed appropriate by the Society.	Loads to be considered in hatch covers and other equipment as specified in **14.1** are to be in accordance with the requirements of **4.8**, **Part 2-2**, instead of **4.10**, **Part 1**. However, the relevant requirements in **Part CSR-B&T** may be applied where deemed appropriate by the Society.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 3 3.1.1-1

Correction	Present	Note
1 The thickness of webs and upper/lower brackets of side frames is not to be less than that obtained from the following formula. $t = 0.03L_{C200} + 3.0\ (mm)$ L_{C200}: The length of the ship (m) specified in **1.4.2.2, Part 1**. **2** The thickness of side shell plating located between deck and bilge hopper tanks is not to be less than that obtained from the following formula: $t = 0.8\sqrt{L_C}\ (mm)$ L_C : The length of the ship (m) specified in **1.~~5~~4.3.1, Part 1**.	**1** The thickness of webs and upper/lower brackets of side frames is not to be less than that obtained from the following formula. $t = 0.03L_{C200} + 3.0\ (mm)$ L_{C200}: The length of the ship (m) specified in **1.4.2.2**. **2** The thickness of side shell plating located between deck and bilge hopper tanks is not to be less than that obtained from the following formula: $t = 0.8\sqrt{L_C}\ (mm)$ L_C : The length of the ship (m) specified in **1.5.3.1**	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in **5.4.2.~~3~~2, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	In the assessment decision specified in **5.4.2.3, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 6 6.1.1.1

Correction	Present	Note
An example of local strength requirements for chip carriers is shown in **Fig. 6.1.1-~~1~~2**. Plates and stiffeners received lateral loads that are not shown in **Fig. 6.1.1-2** are to be assessed in accordance with the requirements of **6.3** and **6.4, Part 1**.	An example of local strength requirements for chip carriers is shown in **Fig. 6.1.1-1**. Plates and stiffeners received lateral loads that are not shown in **Fig. 6.1.1-2** are to be assessed in accordance with the requirements of **6.3** and **6.4, Part 1**.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 1 1.1.1.2

Correction	Present	Note
Ships to which this part applies, those deemed to be bulk carriers as defined in **An1.2.1~~.2~~ (1~~) in~~), Annex 1.1 “Additional Requirements for Bulk Carriers in Chapter XII of the SOLAS Convention”**~~ of **Chapter 1**~~**, Part 2-2**~~,~~ are to also comply with the annex.	Ships to which this part applies, those deemed to be bulk carriers as defined in **An1.1.2 (1)** in **Annex 1.1 “Additional Requirements for Bulk Carriers in Chapter XII of the SOLAS Convention”** of **Chapter 1, Part 2-2**, are to also comply with the annex.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 4 Table 4.4.2-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">
Table 4.4.2-1 Static Load of Steel Coil F_{SCs}
<table>
<tr><th>Members</th><th>n_2 and n_3</th><th>F_{SCs} (<i>kN</i>)</th></tr>
<tr><td rowspan="2">Inner bottom plating</td><td>$n_2 \leq 10$ and $n_3 \leq 5$</td><td>$C_{SC1} W_{SC} \frac{n_1 n_2}{n_3} g$</td></tr>
<tr><td>$n_2 > 10$ or $n_3 > 5$</td><td>$C_{SC1} W_{SC} n_1 \frac{\ell}{\ell_{st}} g$</td></tr>
<tr><td rowspan="2">Hopper tank sloping</td><td>$n_2 \leq 10$ and $n_3 \leq 5$</td><td>$C_{SC2} W_{SC} \frac{n_2}{n_3} g \cdot \cos\alpha$</td></tr>
<tr><td>$n_2 > 10$ or $n_3 > 5$</td><td>$C_{SC2} W_{SC} \frac{\ell}{\ell_{st}} g \cdot \cos\alpha$</td></tr>
<tr><td>Longitudinal bulkheads and side frames</td><td><i>NA</i></td><td>0</td></tr>
<tr><td colspan="3">Notes:
n_1: Number of loading stages of steel coil
n_2: The load point per panel (the number of dunnages for a single panel), as specified in 4.4.2.~~2~~1-3.
n_3: Number of dunnage threads supporting one row of steel coils
W_{SC}: Mass of one steel coil (<i>t</i>)
C_{SC1}: Coefficient as follows:
$C_{SC1} = 1.4$ for single-tiered loading secured with one or more key coils
$C_{SC1} = 1.0$ for multi-tiered loading or single-tired loading without key coils
C_{SC2}: Coefficient, as follows:
$C_{SC2} = 3.2$ for single-tiered stacking or multi-tiered stacking in which the key coil is arranged in the second or third position from the bilge tank sloping or inner hull
$C_{SC2} = 2.0$ for all other cases
ℓ: Distance between floors (<i>m</i>) (<i>See</i> Fig. 4.4.2-2)
ℓ_{st}: Steel coil length (<i>m</i>) (<i>See</i> Fig. 4.4.2-2)
α: The angle between the inner bottom plating and the hopper tank sloping (<i>rad</i>)</td></tr>
</table>
</td><td>Reference correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 10 10.5.1.1

Correction	Present	Note
Self-unloading ships specified in **1.3.1(19), Part B** are to be in accordance with the following **(1)** to **(3)**. (1) **14.1, Part 2-2**, **3.2** and **11.1**, **Part 2-3**, are to be applied. (2) The side frames of self-unloading ships with single-side structures in cargo hold areas are to comply with *IACS* Unified Requirement S12, as may be amended. (3) For self-unloading ships to which **Annex 1.1, Part 2-2** “Additional Requirements for Bulk Carriers in Chapter XII of the SOLAS Convention”~~, Chapter 1, Part 2-2~~ applies according to **1.1.1.2**, regardless of Annexes ~~A3~~**An3.** and ~~A5~~**An5.** when applying said **Annex 1.1,** in cases where self-unloading ships with unloading systems that do not maintain watertightness, the combination loads acting on the bulkheads in the flooded conditions are to be considered using the extent to which the flooding may occur.	Self-unloading ships specified in **1.3.1(19), Part B** are to be in accordance with the following **(1)** to **(3)**. (1) **14.1, Part 2-2**, **3.2** and **11.1**, **Part 2-3**, are to be applied. (2) The side frames of self-unloading ships with single-side structures in cargo hold areas are to comply with *IACS* Unified Requirement S12, as may be amended. (3) For self-unloading ships to which **Annex 1.1 “Additional Requirements for Bulk Carriers in Chapter XII of the SOLAS Convention”, Chapter 1, Part 2-2** applies according to **1.1.1.2**, regardless of **Annexes A3** and **A5** when applying said **Annex 1.1,** in cases where self-unloading ships with unloading systems that do not maintain watertightness, the combination loads acting on the bulkheads in the flooded conditions are to be considered using the extent to which the flooding may occur.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 4 4.7.2.1

Correction	Present	Note
1 The concentrated loads due to the wheels of the vehicle are to be considered as loads for car decks on the ~~beams~~stiffeners attached to the car decks, in accordance with the following formula. $P_{CDK} = P_{Wh-max} \cdot (1 + C_{CDK})$ P_{Wh-max}: Designed maximum wheel load (*kN*). When the wheel load is given in units of *t*, multiply this value by 9.81. C_{CDK}: As given by the following formula: $C_{CDK} = C_{WDz} \frac{a_{Ze-CDK}}{g}$ C_{WDz}: Coefficient related to load condition, as specified in **Table 4.4.2-8, Part 1**. a_{Ze-CDK}: Envelope acceleration (m/s^2) in the vertical direction at the centre line of the car deck under consideration, obtained from the formula specified in **4.2.4.1, Part 1**. Further, the centre of gravity in the longitudinal direction of the car deck under consideration is taken as the centre of the distance between support points for ~~beams~~stiffeners on the car deck accounted for. **2** The load to be considered in the primary supporting members attached to the movable car deck P_{LCDK} (kN/m^2) is to be in accordance with the following formula: $P_{LCDK} = \left(P_{LCDK\_d} + w_{LCDK}\right) \cdot (1 + C_{CDK})$ P_{LCDK_d}: Design deck load (kN/m^2) w_{LCDK}: Deck dead weight (kN/m^2) per unit area C_{CDK}: As specified in **-1** above.	**1** The concentrated loads due to the wheels of the vehicle are to be considered as loads for car decks on the beams attached to the car decks, in accordance with the following formula. $P_{CDK} = P_{Wh-max} \cdot (1 + C_{CDK})$ P_{Wh-max}: Designed maximum wheel load (*kN*). When the wheel load is given in units of *t*, multiply this value by 9.81. C_{CDK}: As given by the following formula: $C_{CDK} = C_{WDz} \frac{a_{Ze-CDK}}{g}$ C_{WDz}: Coefficient related to load condition, as specified in **Table 4.4.2-8, Part 1**. a_{Ze-CDK}: Envelope acceleration (m/s^2) in the vertical direction at the centre line of the car deck under consideration, obtained from the formula specified in **4.2.4.1, Part 1**. Further, the centre of gravity in the longitudinal direction of the car deck under consideration is taken as the centre of the distance between support points for beams on the car deck accounted for. **2** The load to be considered in the primary supporting members attached to the movable car deck P_{LCDK} (kN/m^2) is to be in accordance with the following formula: $P_{LCDK} = \left(P_{LCDK\_d} + w_{LCDK}\right) \cdot (1 + C_{CDK})$ P_{LCDK_d}: Design deck load (kN/m^2) w_{LCDK}: Deck dead weight (kN/m^2) per unit area C_{CDK}: As specified in **-1** above.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 8 8.3.1.1

Correction	Present	Note
The net scantling approach specified in **3.3, Part 1** is to be applied to members to be assessed in strength assessments of the bottom construction specified in **8.4** with regard to the plate thickness in structural models and buckling strength assessments specified in **8.4.~~4~~3.2**. The gross scantling is to be applied in members other than the above.	The net scantling approach specified in **3.3, Part 1** is to be applied to members to be assessed in strength assessments of the bottom construction specified in **8.4** with regard to the plate thickness in structural models and buckling strength assessments specified in **8.4.4**. The gross scantling is to be applied in members other than the above.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 8 8.4.2.2-1

Correction	Present	Note
1 Where analysis in which the lateral loads are applied is carried out, the boundary conditions are to be in accordance with the following **(1)** to **(3)** as shown in **Fig. 8.4.2-~~1~~2**.	**1** Where analysis in which the lateral loads are applied is carried out, the boundary conditions are to be in accordance with the following **(1)** to **(3)** as shown in **Fig. 8.4.2-1**.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.1

Correction	Present	Note
1 Plates and ~~beams~~stiffeners on car decks are to be accessed according to the conditions described in **(1)** and **(2)** below. (1) Maximum load condition (2) Harbour condition (for forklifts and other vehicles only used for cargo handling in harbours) **2** The concentrated load from vehicles is to be taken into consideration for decks loaded with wheeled vehicles and ~~beams~~stiffeners installed on decks.	**1** Plates and beams on car decks are to be accessed according to the conditions described in **(1)** and **(2)** below. (1) Maximum load condition (2) Harbour condition (for forklifts and other vehicles only used for cargo handling in harbours) **2** The concentrated load from vehicles is to be taken into consideration for decks loaded with wheeled vehicles and beams installed on decks.	Wording correction

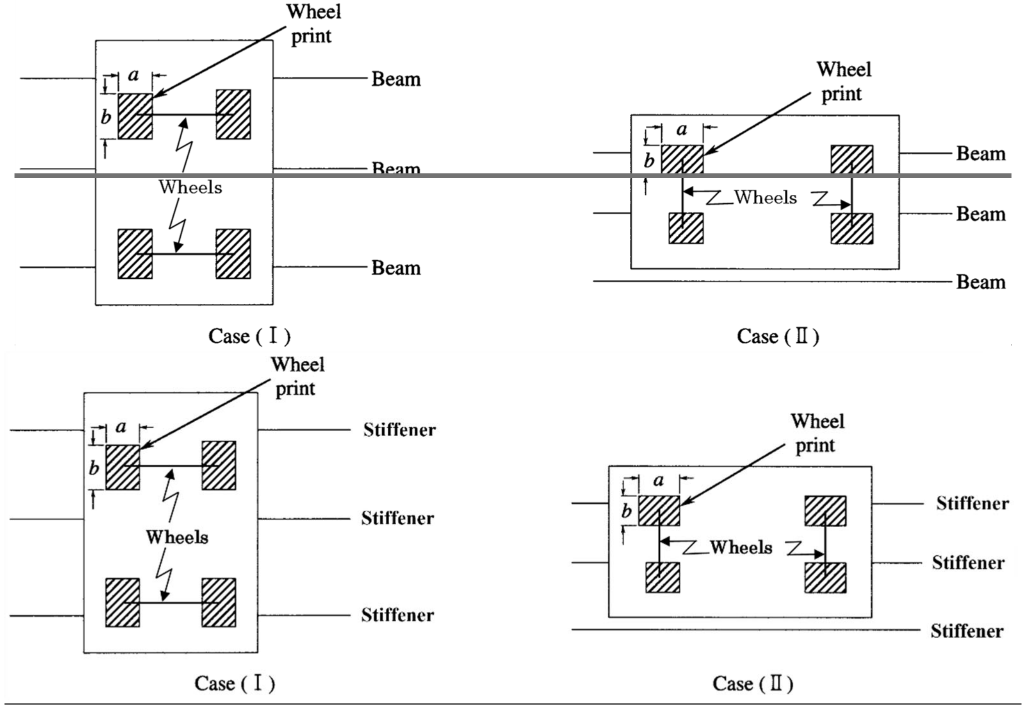
Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.2

Correction	Present	Note
10.1.1.2 Section Modulus of ~~Beams~~Stiffeners **1** The section modulus of ~~beams~~stiffeners of decks loaded with wheeled vehicles (hereinafter referred to as “car decks”) is not to be less than that obtained from the following formula. However, Where the span length or moment of inertia changes along the continuous ~~beam~~stiffener, the scantlings of the ~~beam~~stiffener are to be determined by direct strength calculation as specified in **-2**. $C_{load}C_1\frac{M}{C_S\sigma_Y}\times10^3$ (cm^3) C_{load}: The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only). C_1: Coefficient determined as follows: 1.0 for $b/S \leq 0.8$ $1.25 - 0.31b/S$ for $b/S > 0.8$ S: ~~Beam~~Stiffener spacing (*m*) b: Length (*m*) of wheel print measured at right angle to ~~beams~~stiffeners (*See* **Fig. 10.1.1-1**) For vehicles with ordinary pneumatic tires, values in **Table 10.1.1-1** may be used. C_S: Coefficient related to the influence of axial force, according to **Table 10.1.1-2**. σ_Y: Standard yield stress (*N/mm*^{2}) M: M_1 , M_2 and M_{3j} obtained from the following formula, whichever is the greatest (*kN-m*)	**10.1.1.2 Section Modulus of Beams** **1** The section modulus of beams of decks loaded with wheeled vehicles (hereinafter referred to as “car decks”) is not to be less than that obtained from the following formula. However, Where the span length or moment of inertia changes along the continuous beam, the scantlings of the beam are to be determined by direct strength calculation as specified in **-2**. $C_{load}C_1\frac{M}{C_S\sigma_Y}\times10^3$ (cm^3) C_{load}: The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only). C_1: Coefficient determined as follows: 1.0 for $b/S \leq 0.8$ $1.25 - 0.31b/S$ for $b/S > 0.8$ S: Beam spacing (*m*) b: Length (*m*) of wheel print measured at right angle to beams (*See* **Fig. 10.1.1-1**) For vehicles with ordinary pneumatic tires, values in **Table 10.1.1-1** may be used. C_S: Coefficient related to the influence of axial force, according to **Table 10.1.1-2**. σ_Y: Standard yield stress (*N/mm*^{2}) M: M_1 , M_2 and M_{3j} obtained from the following formula, whichever is the greatest (*kN-m*)	Wording correction

M_1 $= \frac{1}{15}\left\{\sum_{i=1}^{N}4P_{\ i}\alpha_{\ i}\left[1-\left(\frac{\alpha_{\ i}}{\ell}\right)^2\right]\right.$ $\left.+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{\ell}\right)\left(7-5\frac{\alpha_{IIj}}{\ell}\right)-\sum_{k=1}^{N_{III}}P_{IIIk}(\ell-\alpha_{IIIk})\left[1-\left(\frac{\ell-\alpha_{IIIk}}{\ell}\right)^2\right]\right\}$ $M_2=\frac{1}{15}\left\{-\sum_{i=1}^{N}P_{\ i}\alpha_{\ i}\left[1-\left(\frac{\alpha_{\ i}}{\ell}\right)^2\right]\right.$ $+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{\ell}\right)\left(2+5\frac{\alpha_{IIj}}{\ell}\right)$ $\left.+\sum_{k=1}^{N_{III}}4P_{IIIk}(\ell-\alpha_{IIIk})\left[1-\left(\frac{\ell-\alpha_{IIIk}}{\ell}\right)^2\right]\right\}$ $M_{3j}=\left\lvert R_{II}\alpha_{IIj}-\sum_{r=0}^{j-1}P_{IIr}(\alpha_{IIj}\right.$ $\left.-\alpha_{IIr})-\left(\frac{M_2-M_1}{\ell}\right)\alpha_{IIj}-M_1\right\rvert$ Where: $P_{II0}=0, \alpha_{II0}=0$ ℓ: Span (*m*) of ~~beam~~stiffener between support points $P_{Ii}, P_{IIj}, P_{IIIk}$: The wheel load at each support point, as specified in **4.7.2.1** and **4.7.3.1**. Subscript "Ii" means the ith load point from left end of the Ith ~~beam~~stiffener (*See* **Fig. 10.1.1-2**). Subscript "IIj (or IIr)" means the jth (or rth) load point from left end of the IIth ~~beam~~stiffener (*See* **Fig. 10.1.1-2**). Subscript "$IIIk$" means the kth load point from left end of the IIIth ~~beam~~stiffener (*See* **Fig.**	M_1 $= \frac{1}{15}\left\{\sum_{i=1}^{N}4P_{\ i}\alpha_{\ i}\left[1-\left(\frac{\alpha_{\ i}}{\ell}\right)^2\right]\right.$ $\left.+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{\ell}\right)\left(7-5\frac{\alpha_{IIj}}{\ell}\right)-\sum_{k=1}^{N_{III}}P_{IIIk}(\ell-\alpha_{IIIk})\left[1-\left(\frac{\ell-\alpha_{IIIk}}{\ell}\right)^2\right]\right\}$ $M_2=\frac{1}{15}\left\{-\sum_{i=1}^{N}P_{\ i}\alpha_{\ i}\left[1-\left(\frac{\alpha_{\ i}}{\ell}\right)^2\right]\right.$ $+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{\ell}\right)\left(2+5\frac{\alpha_{IIj}}{\ell}\right)$ $\left.+\sum_{k=1}^{N_{III}}4P_{IIIk}(\ell-\alpha_{IIIk})\left[1-\left(\frac{\ell-\alpha_{IIIk}}{\ell}\right)^2\right]\right\}$ $M_{3j}=\left\lvert R_{II}\alpha_{IIj}-\sum_{r=0}^{j-1}P_{IIr}(\alpha_{IIj}\right.$ $\left.-\alpha_{IIr})-\left(\frac{M_2-M_1}{\ell}\right)\alpha_{IIj}-M_1\right\rvert$ Where: $P_{II0}=0, \alpha_{II0}=0$ ℓ: Span (*m*) of beam between support points $P_{Ii}, P_{IIj}, P_{IIIk}$: The wheel load at each support point, as specified in **4.7.2.1** and **4.7.3.1**. Subscript "Ii" means the ith load point from left end of the Ith beam (*See* **Fig. 10.1.1-2**). Subscript "IIj (or IIr)" means the jth (or rth) load point from left end of the IIth beam (*See* **Fig. 10.1.1-2**). Subscript "$IIIk$" means the kth load point from left end of the IIIth beam (*See* **Fig. 10.1.1-2**)	

10.1.1-2) $\alpha_{I\,i}, \alpha_{II\,j}, \alpha_{III k}$: Distance (*m*) from each support point to the point of action of wheel load (*See* **Fig. 10.1.1-2**), when wheels are so arranged that M may be at its maximum value. N_{I}, N_{II}, N_{III}: Number of wheel loads between each span R_{II}: The value obtained from following the formula $R_{II} = \frac{1}{\ell}\sum_{j=1}^{N_{II}} P_{II\,j}\left(\ell - \alpha_{II\,j}\right)$	$\alpha_{I\,i}, \alpha_{II\,j}, \alpha_{III k}$: Distance (*m*) from each support point to the point of action of wheel load (*See* **Fig. 10.1.1-2**), when wheels are so arranged that M may be at its maximum value. N_{I}, N_{II}, N_{III}: Number of wheel loads between each span R_{II}: The value obtained from following the formula $R_{II} = \frac{1}{\ell}\sum_{j=1}^{N_{II}} P_{II\,j}\left(\ell - \alpha_{II\,j}\right)$	

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 Fig. 10.1.1-1

Correction	Present	Note
Fig. 10.1.1-1 Measurement of Wheel Print Length  		Wording correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 Table 10.1.1-2

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table 10.1.1-2 Value of C_s
<table>
<tr><th></th><th>C_s</th></tr>
<tr><td>~~Longitudinal beams~~Longitudinals of strength decks</td><td>$1.0-\frac{|\sigma_{BM}|}{\sigma_Y}$</td></tr>
<tr><td>Other than those above</td><td>1.0</td></tr>
</table>
Notes:
σ_{BM}: According to 6.2.3, Part 1 under maximum weight conditions.
According to the following formula under harbour conditions.
$$\sigma_{BM}=\left|\frac{M_{PT}}{I_{Vertical}}(z-z_B)\right|\times 10^5$$
M_{PT}: The vertical bending moment in the harbour, according to 4.3.1.1, Part 1.
$I_{Vertical}$: The moment of inertia around the horizontal neutral axis of the transection of the member under consideration (net scantling approach) (cm^4)
z: Z coordinate at the load calculation point of the member under consideration (m)
z_B: Z coordinate of the horizontal neutral axis of the transection under consideration (m)
Further, the coordinate system and load calculation point are to be as prescribed in 1.4.3.5, Part 1 and 3.7.1.3, Part 1, respectively.
</td>
<td>
Table 10.1.1-2 Value of C_s
<table>
<tr><th></th><th>C_s</th></tr>
<tr><td>Longitudinal beams of strength decks</td><td>$1.0-\frac{|\sigma_{BM}|}{\sigma_Y}$</td></tr>
<tr><td>Other than those above</td><td>1.0</td></tr>
</table>
Notes:
σ_{BM}: According to 6.2.3, Part 1 under maximum weight conditions.
According to the following formula under harbour conditions.
$$\sigma_{BM}=\left|\frac{M_{PT}}{I_{Vertical}}(z-z_B)\right|\times 10^5$$
M_{PT}: The vertical bending moment in the harbour, according to 4.3.1.1, Part 1.
$I_{Vertical}$: The moment of inertia around the horizontal neutral axis of the transection of the member under consideration (net scantling approach) (cm^4)
z: Z coordinate at the load calculation point of the member under consideration (m)
z_B: Z coordinate of the horizontal neutral axis of the transection under consideration (m)
Further, the coordinate system and load calculation point are to be as prescribed in 1.4.3.5, Part 1 and 3.7.1.3, Part 1, respectively.
</td>
<td>Wording correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.2-2

Correction	Present	Note
2 Scantlings of ~~beams~~stiffeners of car decks may be determined by the direct calculation methods shown below. (1) The model of structures and the method of calculation are to be those approved by the Society. (2) Loads are in accordance to **4.7.2.1** and **4.7.3.1**. (3) The allowable stresses for calculation of the section modulus are to be as shown in **Table 10.1.1-3**.	**2** Scantlings of beams of car decks may be determined by the direct calculation methods shown below. (1) The model of structures and the method of calculation are to be those approved by the Society. (2) Loads are in accordance to **4.7.2.1** and **4.7.3.1**. (3) The allowable stresses for calculation of the section modulus are to be as shown in **Table 10.1.1-3**.	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 Table 10.1.1-3

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td>
Table 10.1.1-3Allowable Stress (N/mm^2)
<table>
<tr><th>Members</th><th>Maximum load condition</th><th>Harbour condition (vehicles used for cargo handling only)</th></tr>
<tr><td>~~Longitudinal beams~~Longitudinals of strength decks</td><td>$C_S\sigma_Y$</td><td>$\frac{1}{1.2}C_S\sigma_Y$</td></tr>
<tr><td>Other than those above</td><td>σ_Y</td><td>$\frac{1}{1.2}\sigma_Y$</td></tr>
</table>
Notes:
C_s: Coefficient related to the influence of axial force, according to **Table 10.1.1-2**.
σ_Y: Standard yield stress (N/mm^2)
</td><td></td><td>Wording correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.3

Correction	Present	Note
The thickness of car deck is to be in accordance with **(1)** or **(2)** below. (1) Where the distance between the centres of wheel prints in a panel is not less than $2S+a$: $C\sqrt{\frac{2S-b'}{2S+a}\cdot P\times 10^3}$ (mm) S: ~~Beam~~Stiffener spacing (*m*)	The thickness of car deck is to be in accordance with **(1)** or **(2)** below. (1) Where the distance between the centres of wheel prints in a panel is not less than $2S+a$: $C\sqrt{\frac{2S-b'}{2S+a}\cdot P\times 10^3}$ (mm) S: Beam spacing (*m*)	Wording correction

P: The wheel load at each support point, as specified in **4.7.2.1** and **4.7.3.1**. However, when $b > S$, the value is to be multiplied by S/b. b': b or S, whichever is the smaller (m) b: Length (m) of wheel print measured at right angle to ~~beams~~stiffeners. (*See* **Fig. 10.1.1-1**) a: Length (m) of wheel print measured in parallel with ~~beams~~stiffeners. (*See* **Fig. 10.1.1-1**) However, for vehicles with ordinary pneumatic tires, values of a and b in **Table 10.1.1-1** may be used. C: Coefficient determined as follows. $C = \frac{1}{2}\sqrt{\frac{C_{coll}C_{load}}{C_a\sigma_Y}}$ C_{coll}: The safety factor in relation to the plastic collapse load of the plate, which is 1.7 C_{load}: The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only). C_a: Axial force influence coefficient, according to **Table 10.1.1-4**. (2) Where the distance between centres of wheel prints in a panel is less than $2S + a$ (**Fig. 10.1.1-3**): $C\sqrt{\frac{2S - b'}{2S + a + e}} \cdot nP \times 10^3 (mm)$ Where: C, S, a, b' and P: As prescribed in **(1)** above. e: Sum of distances (m) between centres of wheel prints where wheels are placed side by side at a spacing of less than $2S + a$ in one panel. (*See* **Fig. 10.1.1-3**) n: Number of wheel loads in the range of e	P: The wheel load at each support point, as specified in **4.7.2.1** and **4.7.3.1**. However, when $b > S$, the value is to be multiplied by S/b. b': b or S, whichever is the smaller (m) b: Length (m) of wheel print measured at right angle to beams. (*See* **Fig. 10.1.1-1**) a: Length (m) of wheel print measured in parallel with beams. (*See* **Fig. 10.1.1-1**) However, for vehicles with ordinary pneumatic tires, values of a and b in **Table 10.1.1-1** may be used. C: Coefficient determined as follows. $C = \frac{1}{2}\sqrt{\frac{C_{coll}C_{load}}{C_a\sigma_Y}}$ C_{coll}: The safety factor in relation to the plastic collapse load of the plate, which is 1.7 C_{load}: The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only). C_a: Axial force influence coefficient, according to **Table 10.1.1-4**. (2) Where the distance between centres of wheel prints in a panel is less than $2S + a$ (**Fig. 10.1.1-3**): $C\sqrt{\frac{2S - b'}{2S + a + e}} \cdot nP \times 10^3 (mm)$ Where: C, S, a, b' and P: As prescribed in **(1)** above. e: Sum of distances (m) between centres of wheel prints where wheels are placed side by side at a spacing of less than $2S + a$ in one panel. (*See* **Fig. 10.1.1-3**) n: Number of wheel loads in the range of e	

Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 12 12.1.1.1

Correction	Present	Note
12.1.1.1 ~~Deck Beams Supporting Vehicles~~Stiffeners of Car Decks **1** The impact of the dynamic load caused by vehicular traffic is to be taken into account when determining the kind of stiffeners used and the fillet welding method for connecting those stiffeners to the car deck. **2** The method used to weld the stiffeners to the car deck is to be at least in accordance with the requirements specified in **Table 12.1.1-1** according to the type of stiffener and frequency of vehicular traffic. **3** Notwithstanding **-2** above, the requirement stipulated in **12.2.1.3-4, Part 1** of the Rules applies. Where continuous welding is carried out only on one side, at least F2 welding is to be carried out on the other side, as specified below. (1) Up to 0.1ℓ from the end of the ~~beams~~ ~~(2) 0.1ℓ on either side of the intersection of beams and girders~~stiffeners (2) 0.1ℓ on either side of the intersection of stiffeners and girders	**12.1.1.1 Deck Beams Supporting Vehicles** **1** The impact of the dynamic load caused by vehicular traffic is to be taken into account when determining the kind of stiffeners used and the fillet welding method for connecting those stiffeners to the car deck. **2** The method used to weld the stiffeners to the car deck is to be at least in accordance with the requirements specified in **Table 12.1.1-1** according to the type of stiffener and frequency of vehicular traffic. **3** Notwithstanding **-2** above, the requirement stipulated in **12.2.1.3-4, Part 1** of the Rules applies. Where continuous welding is carried out only on one side, at least F2 welding is to be carried out on the other side, as specified below. (1) Up to 0.1ℓ from the end of the beams (2) 0.1ℓ on either side of the intersection of beams and girders	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 2 2.1.1.2

Correction	Present	Note
1 All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with **4.2.4**~~ and **4.3.3**~~**, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60 °C, the requirements may be suitably modified. **2** Cofferdams which are not utilized as main or auxiliary	**1** All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with **4.2.4** and **4.3.3, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60 °C, the requirements may be suitably modified. **2** Cofferdams which are not utilized as main or auxiliary	Reference correction

pump rooms and compartments utilized as cofferdams under the freeboard deck are to meet the requirements for the strength of deep tanks. The bulkhead between the main pump room and engine room is to have structural scantlings of a watertight bulkhead in ships of not less than 100 *m* in length L_C and of an airtight bulkhead in ships of less than 100 *m* in length L_C.	pump rooms and compartments utilized as cofferdams under the freeboard deck are to meet the requirements for the strength of deep tanks. The bulkhead between the main pump room and engine room is to have structural scantlings of a watertight bulkhead in ships of not less than 100 *m* in length L_C and of an airtight bulkhead in ships of less than 100 *m* in length L_C.	

Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 4 4.2.2.1-1

Correction	Present	Note
1 When applying **4.4.2, Part 1**, the parameters (GM, z_G, etc.) required to calculate pressure dynamic pressure due to cargo are to be values in the full load condition regardless of the cargo density to be considered. However, the values in **Table 4.2.2-~~2~~1** may be used if the parameters are not available.	**1** When applying **4.4.2, Part 1**, the parameters (GM, z_G, etc.) required to calculate pressure dynamic pressure due to cargo are to be values in the full load condition regardless of the cargo density to be considered. However, the values in **Table 4.2.2-2** may be used if the parameters are not available.	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 6 6.1.2.3

Correction	Present	Note
(Omitted) $F_a = (\rho_L V_t \times 10^3 + m_T)(g + a_{ze})$ (*N*) ρ_L: Cargo density (*ton/m*^{3}) V_t: Tank volume (*m*^{3}) supported by the supporting structure under consideration m_t: Mass of tank, insulation and equipment (*kg*) a_{Ze}: Vertical envelope acceleration acting on the centre of gravity of the cargo tank under consideration, according to **4.2.2.1, Part 2-7** (Omitted)	(Omitted) $F_a = (\rho_L V_t \times 10^3 + m_T)(g + a_{ze})$ (*N*) ρ_L: Cargo density (*ton/m*^{3}) V_t: Tank volume (*m*^{3}) supported by the supporting structure under consideration m_t: Mass of tank, insulation and equipment (*kg*) a_{Ze}: Vertical envelope acceleration acting on the centre of gravity of the cargo tank under consideration, according to **4.2.2.1, Part 2** (Omitted)	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 14 14.1.2.3

Correction	Present	Note
1 Materials used for tank cleaning hatch covers provided for cargo oil tanks are to be as follows. (1) Covers may be constructed of brass, bronze or steel, but are not to be constructed of aluminium. (2) Synthetic materials such as glass-fibre reinforced plastics materials may be used only when all the requirements under **-14.1**~~ above~~**.2.2** can be met. (Omitted)	**1** Materials used for tank cleaning hatch covers provided for cargo oil tanks are to be as follows. (1) Covers may be constructed of brass, bronze or steel, but are not to be constructed of aluminium. (2) Synthetic materials such as glass-fibre reinforced plastics materials may be used only when all the requirements under **-1** above can be met. (Omitted)	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-8 Chapter 5 5.1.1.1

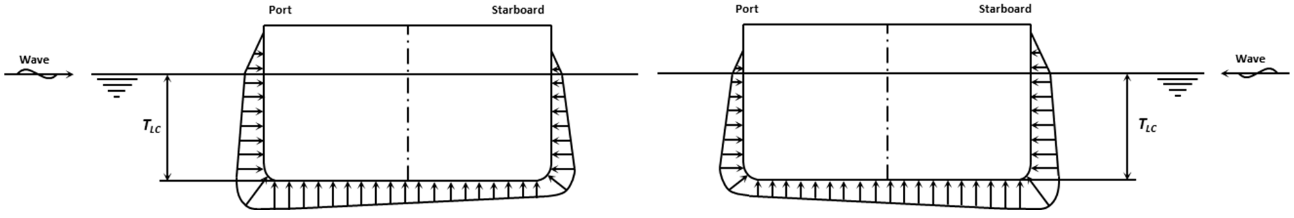
Correction	Present	Note
In the assessment decision specified in **5.4.2.~~3~~2, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.25$	In the assessment decision specified in **5.4.2.3, Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.25$	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Table 4.3.5-2

Correction	Present	Note
Table 4.3.5-2 Static Pressure in Collision Condition Static pressure P_{LS-COL} $\rho_C g\left(z_{top} - z\right) + P_0$ Notes: z_{top}: The *Z*-coordinate of the highest point in the cargo tank (*m*) P_0: Design vapour pressure (*kN/m*^{2}), not to be less than *MARVS* specified in **1.1.~~4~~5, Part ~~1~~N**.		Reference correction

Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Fig. 4.4.2-1

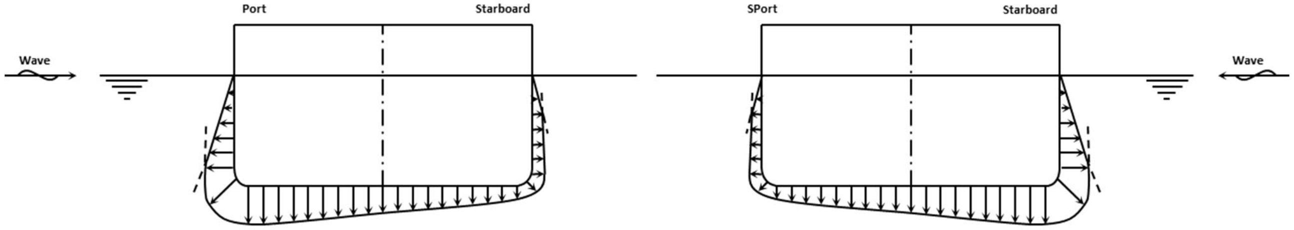
<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Table~~Fig. 4.4.2-1 Hydrodynamic Pressure Distribution near $0.7L_C$ in the Equivalent Design Wave *AV*



AV-1*P* *AV*-1*S*</td><td>Wording correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Fig. 4.4.2-2

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Table~~Fig. 4.4.2-2 Hydrodynamic Pressure Distribution near $0.7L_C$ in the Equivalent Design Wave *AV*



AV-2*P* *AV*-2*S*</td><td>Wording correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in **5.4.2.~~3~~2 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	In the assessment decision specified in **5.4.2.3 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 8 8.4.2.2

Correction	Present	Note
In applying **8.5.2, Part 1**, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the method specified in **8.4.2 ~~in~~, Part 2-8**.	In applying **8.5.2, Part 1**, the vertical bending moment and horizontal bending moment act on the target hold are to be adjusted in accordance with the method specified in **8.4.2 in Part 2-8**.	Wording correction

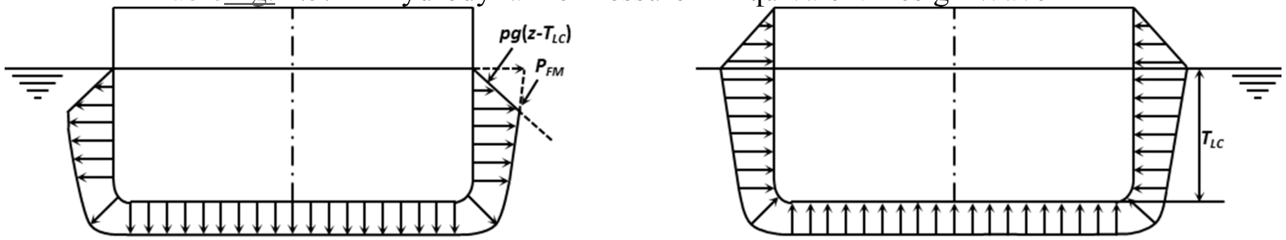
Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 9 9.6.1.1-2

Correction	Present	Note
1 Fatigue strength assessment is to be in accordance with **9.5, Part 1**. **2** Notwithstanding the requirement in **-1** above, the fatigue strength assessment criteria is to be in accordance with the following formula: $\eta \cdot C_{ST} \cdot D \leq 1.0$ η: Correction factor of fatigue damage based on fatigue load used in the assessment, as given in **~~table~~Table 9.5.5-1, Part 1**. C_{ST}: Correction coefficient of fatigue damage, to be obtained from the followings according to the assessment target. For hull structure, cargo tank structure, supports in vertical direction and supports in transverse direction (upper part of cargo tank): 1.0 For supports in transverse direction (lower part of cargo tank): 1.1	**1** Fatigue strength assessment is to be in accordance with **9.5, Part 1**. **2** Notwithstanding the requirement in **-1** above, the fatigue strength assessment criteria is to be in accordance with the following formula: $\eta \cdot C_{ST} \cdot D \leq 1.0$ η: Correction factor of fatigue damage based on fatigue load used in the assessment, as given in **table 9.5.5-1, Part 1**. C_{ST}: Correction coefficient of fatigue damage, to be obtained from the followings according to the assessment target. For hull structure, cargo tank structure, supports in vertical direction and supports in transverse direction (upper part of cargo tank): 1.0 For supports in transverse direction (lower part of cargo tank): 1.1	Wording correction

Rules for the survey and construction of steel ships Part C Part 2-10 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in **5.4.2.~~3~~2 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	In the assessment decision specified in **5.4.2.3 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	Reference correction

Rules for the survey and construction of steel ships Part C Part 2-11 Chapter 4 Fig. 4.5.2.1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Table~~Fig. 4.5.2-1 Hydrodynamic Pressure in Equivalent Design Wave <i>FMT</i>

<i>FMT</i>-1 <i>FMT</i>-2</td><td>Wording correction</td></tr>
</table>

Rules for the survey and construction of steel ships Part C Part 2-11 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in **5.4.2.~~3~~2 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	In the assessment decision specified in **5.4.2.3 in Part 1**, the coefficient γ_{DB} that takes into account the effect of double bottom bending is as follows. $\gamma_{DB} = 1.15$	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 2 Section 1 2.1.2

Correction	Present	Note
Ref. SOLAS Ch. II-1, Part B-2, Reg. 12 Where any part of the ship below the waterline extends forward of the forward perpendicular, e.g. a bulbous bow, the distances, in metres, stipulated in ~~[~~**2.1.1**~~]~~ are to be measured from a point either: ・ at the mid-length of such extension, or ・ at a distance 1.5% of the length L_{LL} of the ship forward of the forward perpendicular, or ・ at a distance 3 *m* forward of the forward perpendicular, whichever gives the smallest measurement.	*Ref. SOLAS Ch. II-1, Part B-2, Reg. 12* Where any part of the ship below the waterline extends forward of the forward perpendicular, e.g. a bulbous bow, the distances, in metres, stipulated in **[2.1.1]** are to be measured from a point either: ・ at the mid-length of such extension, or ・ at a distance 1.5% of the length L_{LL} of the ship forward of the forward perpendicular, or ・ at a distance 3 *m* forward of the forward perpendicular, whichever gives the smallest measurement.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 6 2.2.1

Correction	Present	Note
The inertial pressure due to liquid p_{BW}, in kN/m^2, for each load case is given as follows. When checking ballast water exchange operations by means of the flow through method, the inertial pressure due to ballast water is not to be considered for local strength assessments and direct strength analysis. ・ for load case H: $p_{BW} = \rho_L \left[a_Z(z_{TOP} - z) + a_X(x - x_B)\right]$ (x - x_B) is to be taken as 0.~~75□H~~75ℓ_H in the load case H1 or -0.~~75□H~~75ℓ_H in the load case H2 for local strength by **Ch**~~-~~ **6** and fatigue check for longitudinal stiffeners by **Ch 8** ・ for load case F: $p_{BW} = 0$ ・ for load cases R and P: $p_{BW} = \rho_L \left[a_Z(z_{\mathbf{B}} - z) + a_Y(y - y_B)\right]$ where: x_B : X co-ordinate, in m, of the aft end of the tank when the bow side is downward, or of the fore end of the tank when the bow side is upward, as defined in **Fig. 3**	The inertial pressure due to liquid p_{BW}, in kN/m^2, for each load case is given as follows. When checking ballast water exchange operations by means of the flow through method, the inertial pressure due to ballast water is not to be considered for local strength assessments and direct strength analysis. ・ for load case H: $p_{BW} = \rho_L \left[a_Z(z_{TOP} - z) + a_X(x - x_B)\right]$ (x - x_B) is to be taken as 0.75□$_H$ in the load case H1 or -0.75□$_H$ in the load case H2 for local strength by **Ch 6** and fatigue check for longitudinal stiffeners by **Ch 8** ・ for load case F: $p_{BW} = 0$ ・ for load cases R and P: $p_{BW} = \rho_L \left[a_Z(z_{\mathbf{B}} - z) + a_Y(y - y_B)\right]$ where: x_B : X co-ordinate, in m, of the aft end of the tank when the bow side is downward, or of the fore end of the tank when the bow side is upward, as defined in **Fig. 3**	Reference correction

y_B : Y co-ordinate, in *m*, of the tank top located at the most lee side when the weather side is downward, or of the most weather side when the weather side is upward, as defined in **Fig. 3** z_B : Z co-ordinate of the following point: • for completely filled spaces: the tank top • for ballast hold: the top of the hatch coaming The reference point B is defined as the upper most point after rotation by the angle φ between the vertical axis and the global acceleration vector $\vec{A}_G$ shown in **Fig. 3**. φ is obtained from the following formulae: • load cases H1 and H2: $\varphi = \tan^{-1}(\frac{\lvert a_X \rvert}{g\cos\Phi + a_Z})$ • load cases R1(P1) and R2(P2): $\varphi = \tan^{-1}(\frac{\lvert a_Y \rvert}{g\cos\theta + a_Z})$ where: θ : Single roll amplitude, in *deg*, defined in **~~Ch4~~Ch 4, Sec 2, 2.1.1** Φ : Single pitch amplitude, in *deg*, defined in **~~Ch4~~Ch 4, Sec 2, 2.2.1** The total pressure ($p_{BS} + p_{BW}$) is not to be negative.	y_B : Y co-ordinate, in *m*, of the tank top located at the most lee side when the weather side is downward, or of the most weather side when the weather side is upward, as defined in **Fig. 3** z_B : Z co-ordinate of the following point: • for completely filled spaces: the tank top • for ballast hold: the top of the hatch coaming The reference point B is defined as the upper most point after rotation by the angle φ between the vertical axis and the global acceleration vector $\vec{A}_G$ shown in **Fig. 3**. φ is obtained from the following formulae: • load cases H1 and H2: $\varphi = \tan^{-1}(\frac{\lvert a_X \rvert}{g\cos\Phi + a_Z})$ • load cases R1(P1) and R2(P2): $\varphi = \tan^{-1}(\frac{\lvert a_Y \rvert}{g\cos\theta + a_Z})$ where: θ : Single roll amplitude, in *deg*, defined in **Ch4, Sec 2, 2.1.1** Φ : Single pitch amplitude, in *deg*, defined in **Ch4, Sec 2, 2.2.1** The total pressure ($p_{BS} + p_{BW}$) is not to be negative.	

Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 3.7.1

Correction	Present	Note
Based on the design loading criteria for local strength, as given in **3.2** to **3.6** except **3.5.1**, hold mass curves are to be included in the loading manual and the loading instrument, showing maximum allowable and minimum required mass as a function of draught in sea-going condition as well as during loading and unloading in harbour. Hold mass curves are to be calculated according to **Ch 4, ~~App~~Appendix 1**.	Based on the design loading criteria for local strength, as given in **3.2** to **3.6** except **3.5.1**, hold mass curves are to be included in the loading manual and the loading instrument, showing maximum allowable and minimum required mass as a function of draught in sea-going condition as well as during loading and unloading in harbour. Hold mass curves are to be calculated according to **Ch 4, App 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 4.3.1

Correction	Present	Note
The minimum required loading conditions for direct strength analysis, including vertical shear force analysis, are defined in **Ch 4, ~~App~~Appendix 2**.	The minimum required loading conditions for direct strength analysis, including vertical shear force analysis, are defined in **Ch 4, App 2**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 4.3.2

Correction	Present	Note
The standard loading conditions for fatigue assessment are defined in **Ch 4, ~~App~~Appendix 3**.	The standard loading conditions for fatigue assessment are defined in **Ch 4, App 3**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 5 Section 2 2.2.1

Correction	Present	Note
The ultimate bending moment capacities of a hull girder transverse section, in hogging and sagging conditions, are defined as the maximum values of the curve of bending moment capacity M versus the curvature χ of the transverse section considered (see **Fig. 1**). The curvature χ is positive for hogging condition and negative for sagging condition. The curve M-χ is to be obtained through an incremental-iterative procedure, according to the criteria specified in **~~App~~Ch 5, Appendix 1**.	The ultimate bending moment capacities of a hull girder transverse section, in hogging and sagging conditions, are defined as the maximum values of the curve of bending moment capacity M versus the curvature χ of the transverse section considered (see **Fig. 1**). The curvature χ is positive for hogging condition and negative for sagging condition. The curve M-χ is to be obtained through an incremental-iterative procedure, according to the criteria specified in **App 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 2.2.1

Correction	Present	Note
The net thickness of the web of ordinary stiffeners, in *mm*, is to be not less than the greater of: ・ $t = 3.0 + 0.015L_2$ ・ 40% of the net required thickness of the attached plating, to be determined according to **Ch~~.~~ 6, Sec~~.~~ 1**.	The net thickness of the web of ordinary stiffeners, in *mm*, is to be not less than the greater of: ・ $t = 3.0 + 0.015L_2$ ・ 40% of the net required thickness of the attached plating, to be determined according to **Ch.6, Sec.1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 2.5.2

Correction	Present	Note
2.5.2 Ordinary stiffeners located on inner bottom plating The net section modulus w, in *cm*^{3}, and the net shear sectional area A_{sh}, in *cm*^{2}, of single span ordinary stiffeners located on inner bottom plating are to be not less than the values obtained from the following formulae: $w = K_3 \frac{\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{8\lambda_S R_Y}$ $A_{sh} = \frac{5\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{\tau_a \sin\phi} 10^{-3}$ where: K_3 : Coefficient defined in **Table 1**. When n_2 is greater than 10, K_3 is to be taken equal to 2□/3 a_Z : Vertical acceleration, in *m/s*^{2}, defined in **Ch 6, ~~Sec1~~Sec 1, 2.7.1** bis1 Φ : Single pitch amplitude, in *deg*, defined in **Ch 4, Sec 2, 2.2** θ : Single roll amplitude, in *deg*, defined in **Ch 4, Sec 2, 2.1** C_{ZP}, C_{ZR} : Load combination factor defined in **Ch 4, Sec 4, 2.2** F : Force, in *kg*, defined in **Ch 6, Sec 1, 2.7.2** λ_S : Coefficient defined in **Table 3** ϕ :Angle, in *deg*, defined in **3.2.3**	2.5.2 Ordinary stiffeners located on inner bottom plating The net section modulus w, in *cm*^{3}, and the net shear sectional area A_{sh}, in *cm*^{2}, of single span ordinary stiffeners located on inner bottom plating are to be not less than the values obtained from the following formulae: $w = K_3 \frac{\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{8\lambda_S R_Y}$ $A_{sh} = \frac{5\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{\tau_a \sin\phi} 10^{-3}$ where: K_3 : Coefficient defined in **Table 1**. When n_2 is greater than 10, K_3 is to be taken equal to 2□/3 a_Z : Vertical acceleration, in *m/s*^{2}, defined in **Ch 6, Sec1, 2.7.1 bis1** Φ : Single pitch amplitude, in *deg*, defined in **Ch 4, Sec 2, 2.2** θ : Single roll amplitude, in *deg*, defined in **Ch 4, Sec 2, 2.1** C_{ZP}, C_{ZR} : Load combination factor defined in **Ch 4, Sec 4, 2.2** F : Force, in *kg*, defined in **Ch 6, Sec 1, 2.7.2** λ_S : Coefficient defined in **Table 3** ϕ :Angle, in *deg*, defined in **3.2.3**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 3.3.1

Correction	Present	Note
The net section modulus w, in cm^3, and the net shear sectional area A_{sh}, in cm^2, of side frames subjected to lateral pressure are to be not less, in the mid-span area, than the values obtained from the following formulae: $w = 1.125\alpha_m \frac{(p_S + p_W)s\ell^2}{m\lambda_S R_Y} 10^3$ A_{sh} $= 1.1\alpha_S$ ~~$\frac{5(p_S + p_W)s\ell}{\tau_a \sin\phi}$~~ $\frac{5(p_S + p_W)s\ell}{\tau_a sin\phi}\left(\frac{\ell - 2\ell_B}{\ell}\right)$ where: α_m :Coefficient taken equal to: $\alpha_m = 0.42$ for *BC-A* ships $\alpha_m = 0.36$ for other ships λ_S :Coefficient taken equal to 0.9 ~~□~~ℓ :Side frame span, in m, defined in **Ch 3, Sec 6, Fig. 19**, to be taken not less than 0.25*D* α_S :Coefficient taken equal to: $\alpha_S = 1.1$ for side frames of holds specified to be empty in *BC-A* ships $\alpha_S = 1.0$ for other side frames ~~□$_B$~~$\ell_{\underline{B}}$: Lower bracket length, in *m*, defined in **Fig 7** p_S~~□,~~, p_W: Still water and wave pressures, in *kN/m*^{2}, in intact conditions calculated as defined in **1.3** ~~and1~~and **1.4.2**. In addition, for side frames of holds intended to carry ballast water in heavy ballast condition, the net section modulus w, in cm^3, and the net shear sectional area A_{sh}, in cm^2, all along the span are to be in accordance with **3.2.3**, ~~□~~ℓ being the span of the side frame as defined in **Ch~~.~~ 3, Sec~~.~~ 6, 4.2**, with consideration to brackets at ends.	The net section modulus w, in cm^3, and the net shear sectional area A_{sh}, in cm^2, of side frames subjected to lateral pressure are to be not less, in the mid-span area, than the values obtained from the following formulae: $w = 1.125\alpha_m \frac{(p_S + p_W)s\ell^2}{m\lambda_S R_Y} 10^3$ $A_{sh} = 1.1\alpha_S \frac{5(p_S + p_W)s\ell}{\tau_a \sin\phi}\left(\frac{\ell - 2\ell_B}{\ell}\right)$ where: α_m :Coefficient taken equal to: $\alpha_m = 0.42$ for *BC-A* ships $\alpha_m = 0.36$ for other ships λ_S :Coefficient taken equal to 0.9 □ :Side frame span, in m, defined in **Ch 3, Sec 6, Fig. 19**, to be taken not less than 0.25*D* α_S :Coefficient taken equal to: $\alpha_S = 1.1$ for side frames of holds specified to be empty in *BC-A* ships $\alpha_S = 1.0$ for other side frames □$_B$:Lower bracket length, in *m*, defined in **Fig 7** p_S□, p_W : Still water and wave pressures, in *kN/m*^{2}, in intact conditions calculated as defined in **1.3** and**1.4.2**. In addition, for side frames of holds intended to carry ballast water in heavy ballast condition, the net section modulus w, in cm^3, and the net shear sectional area A_{sh}, in cm^2, all along the span are to be in accordance with **3.2.3**, □ being the span of the side frame as defined in **Ch.3, Sec.6, 4.2**, with consideration to brackets at ends.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 3.6.1

Correction	Present	Note
The bending capacity and the shear capacity of the corrugations of watertight bulkheads between separating cargo holds are to comply with the following formulae: $0.5W_{LE} + W_M \geq \frac{M}{0.95R_{eH}} 10^3$ $\tau \leq \frac{R_{eH}}{2}$ where: M : Bending moment in a corrugation, to be obtained, in $kN.m$, from the following formula: M = ~~F□$_c$~~$F\ell_C$ / 8 F : Force F_F or resultant force, in kN, to be calculated according to **Ch 4, Sec 6, 3.3.6** and **3.3.7**, respectively ~~□$_c$~~ℓ_C : Span of the corrugations, in m, to be obtained according to **3.6.2** W_{LE} : Net section modulus, in cm^3, of one half pitch corrugation, to be calculated at the lower end of the corrugations according to **3.6.2**, without being taken greater than the value obtained from the following formula: $W_{LE,M} = W_G + \left(\frac{Q\,h_G - 0.5h_G^2\,s_C\,p_G}{R_{eH}}\right) 10^3$ W_G : Net section modulus, in cm^3, of one half pitch corrugation, to be calculated in way of the upper end of shedder or gusset plates, as applicable, according to **3.6.2** Q : Shear force at the lower end of a corrugation, to be obtained, in kN, from the following formula: $Q = 0.8F$ h_G : Height, in m, of shedders or gusset plates, as	The bending capacity and the shear capacity of the corrugations of watertight bulkheads between separating cargo holds are to comply with the following formulae: $0.5W_{LE} + W_M \geq \frac{M}{0.95R_{eH}} 10^3$ $\tau \leq \frac{R_{eH}}{2}$ where: M : Bending moment in a corrugation, to be obtained, in $kN.m$, from the following formula: M = F□$_C$ / 8 F : Force F_F or resultant force, in kN, to be calculated according to **Ch 4, Sec 6, 3.3.6** and **3.3.7**, respectively □$_C$: Span of the corrugations, in m, to be obtained according to **3.6.2** W_{LE} : Net section modulus, in cm^3, of one half pitch corrugation, to be calculated at the lower end of the corrugations according to **3.6.2**, without being taken greater than the value obtained from the following formula: $W_{LE,M} = W_G + \left(\frac{Q\,h_G - 0.5h_G^2\,s_C\,p_G}{R_{eH}}\right) 10^3$ W_G : Net section modulus, in cm^3, of one half pitch corrugation, to be calculated in way of the upper end of shedder or gusset plates, as applicable, according to **3.6.2** Q : Shear force at the lower end of a corrugation, to be obtained, in kN, from the following formula: $Q = 0.8F$ h_G : Height, in m, of shedders or gusset plates, as	Reference correction

applicable (see **Fig. 11** to **Fig. 15**) p_G : Pressure p_F or resultant pressure p, in kN/m^2, to be calculated in way of the middle of the shedders or gusset plates, as applicable, according to **Ch 4, Sec 6, 3.3.6** and **3.3.7**, respectively s_C : Spacing of the corrugations, in m, to be taken according to **Ch 3, Sec 6, Fig.28** W_M: Net section modulus, in cm^3, of one half pitch corrugation, to be calculated at the mid-span of corrugations according to **3.6.2**, without being taken greater than $1.15W_{LE}$ τ : Shear stress in the corrugation, in N/mm^2, to be obtained from the following formula: $\tau = 10\frac{Q}{A_{sh}}$ A_{sh} : Shear area, in cm^2, calculated according to the followings. The shear area is to be reduced in order to account for possible non-perpendicular between the corrugation webs and flanges. In general, the reduced shear area may be obtained by multiplying the web sectional area by (sin φ), φ being the angle between the web and the flange (see **Ch 3, Sec 6, Fig. 28**). The actual net section modulus of corrugations is to be calculated according to **3.6.2**. The net section modulus of the corrugations upper part of the bulkhead, as defined in **Sec 1, Fig. 5**, is to be not less than 75% of that of the middle part complying with this requirement and **Sec 1, 3.2.1**, corrected for different minimum yield stresses.	applicable (see **Fig. 11** to **Fig. 15**) p_G : Pressure p_F or resultant pressure p, in kN/m^2, to be calculated in way of the middle of the shedders or gusset plates, as applicable, according to **Ch 4, Sec 6, 3.3.6** and **3.3.7**, respectively s_C : Spacing of the corrugations, in m, to be taken according to **Ch 3, Sec 6, Fig.28** W_M: Net section modulus, in cm^3, of one half pitch corrugation, to be calculated at the mid-span of corrugations according to **3.6.2**, without being taken greater than $1.15W_{LE}$ τ : Shear stress in the corrugation, in N/mm^2, to be obtained from the following formula: $\tau = 10\frac{Q}{A_{sh}}$ A_{sh} : Shear area, in cm^2, calculated according to the followings. The shear area is to be reduced in order to account for possible non-perpendicular between the corrugation webs and flanges. In general, the reduced shear area may be obtained by multiplying the web sectional area by (sin φ), φ being the angle between the web and the flange (see **Ch 3, Sec 6, Fig. 28**). The actual net section modulus of corrugations is to be calculated according to **3.6.2**. The net section modulus of the corrugations upper part of the bulkhead, as defined in **Sec 1, Fig. 5**, is to be not less than 75% of that of the middle part complying with this requirement and **Sec 1, 3.2.1**, corrected for different minimum yield stresses.	

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 3 2.2.1

Correction	Present	Note
Application of the buckling and ultimate strength criterion is described in ~~**App**~~**Ch 6, Appendix 1**.	Application of the buckling and ultimate strength criterion is described in **App 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Appendix 1 1.2.1

Correction	Present	Note
1.2.1 Idealization of elementary plate panels The buckling check of the elementary plate panel is to be performed under the loads defined in **Ch 6, Sec 3, 2.1**, according to the requirements of **Ch 6, Sec 3, 3**. The determination of the buckling and reduction factors is made according to the **Ch 6, Sec 3, Table 2** for the plane plate panel and **Ch 6, Sec 3, Table 3** for the curved plate panel. For the determination of the buckling and reduction factors in **Ch 6, Sec 3, Table 2**, the following cases are to be used according to the type of stresses and framing system of the plating: ・ For the normal compressive stress: ・ Buckling load case 1 for longitudinally framed plating, the membrane stress in x-direction σ_x being the normal stress σ_n defined in **Ch 6, Sec 3, 2.1.2** ・ Buckling load case 2 for transversely framed plating, the membrane stress in y-direction σ_y being the normal stress σ_n defined in **Ch 6,** ~~**Sec3**~~**Sec 3, 2.1.2**, and the values a and b being exchanged to obtain α value greater than 1 as it is considered in load case 2. ・ For the shear stress: Buckling case 5, τ being the shear stress τ_{SF} defined in **Ch 6, Sec 3, 2.1.3**.	1.2.1 Idealization of elementary plate panels The buckling check of the elementary plate panel is to be performed under the loads defined in **Ch 6, Sec 3, 2.1**, according to the requirements of **Ch 6, Sec 3, 3**. The determination of the buckling and reduction factors is made according to the **Ch 6, Sec 3, Table 2** for the plane plate panel and **Ch 6, Sec 3, Table 3** for the curved plate panel. For the determination of the buckling and reduction factors in **Ch 6, Sec 3, Table 2**, the following cases are to be used according to the type of stresses and framing system of the plating: ・ For the normal compressive stress: ・ Buckling load case 1 for longitudinally framed plating, the membrane stress in x-direction σ_x being the normal stress σ_n defined in **Ch 6, Sec 3, 2.1.2** ・ Buckling load case 2 for transversely framed plating, the membrane stress in y-direction σ_y being the normal stress σ_n defined in **Ch 6, Sec3, 2.1.2**, and the values a and b being exchanged to obtain α value greater than 1 as it is considered in load case 2. ・ For the shear stress: Buckling case 5, τ being the shear stress τ_{SF} defined in **Ch 6, Sec 3, 2.1.3**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.1.1

Correction	Present	Note
The longitudinal extent of *FE* model is to cover three cargo holds and four transverse bulkheads. The transverse bulkheads at the ends of the model extent are to be included, together with their associated stools. Both ends of the model are to form vertical planes and to include any transverse web frames on the planes if any. The details of the extent of the model are given in ~~**App**~~**Ch 7, Appendix 1**.	The longitudinal extent of *FE* model is to cover three cargo holds and four transverse bulkheads. The transverse bulkheads at the ends of the model extent are to be included, together with their associated stools. Both ends of the model are to form vertical planes and to include any transverse web frames on the planes if any. The details of the extent of the model are given in **App 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.2.4

Correction	Present	Note
When orthotropic elements are not used in *FE* model: ・ mesh size is to be equal to or less than the representative spacing of longitudinal stiffeners or transverse side frames ・ stiffeners are to be modeled by using rod and/or beam/bar elements ・ webs of primary supporting members are to be divided at least three elements height-wise However, for transverse primary supporting members inside hopper tank and top side tank, which are less in height than the space between ordinary longitudinal stiffeners, two elements on the height of primary supporting members are accepted. ・ side shell frames and their end brackets are to be modeled by using shell elements for web and shell/beam/rod elements for face plate. Webs of side shell frames need not be divided along the direction of depth ・ aspect ratio of elements is not to exceed 1:4. An example of typical mesh is given in ~~**App**~~**Ch 7, Appendix 1**.	When orthotropic elements are not used in *FE* model: ・ mesh size is to be equal to or less than the representative spacing of longitudinal stiffeners or transverse side frames ・ stiffeners are to be modeled by using rod and/or beam/bar elements ・ webs of primary supporting members are to be divided at least three elements height-wise However, for transverse primary supporting members inside hopper tank and top side tank, which are less in height than the space between ordinary longitudinal stiffeners, two elements on the height of primary supporting members are accepted. ・ side shell frames and their end brackets are to be modeled by using shell elements for web and shell/beam/rod elements for face plate. Webs of side shell frames need not be divided along the direction of depth ・ aspect ratio of elements is not to exceed 1:4. An example of typical mesh is given in **App 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.4.1

Correction	Present	Note
The loading conditions, combined with loading patterns and load cases, as illustrated in **Ch 4, ~~App~~Appendix 2**, are to be considered as mandatory conditions for the conventional designs.	The loading conditions, combined with loading patterns and load cases, as illustrated in **Ch 4, App 2**, are to be considered as mandatory conditions for the conventional designs.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.5.2

Correction	Present	Note
Vertical bending moment analysis is to be performed for cases listed in **Ch 4, Sec 7, Table 2**, the minimum required cases being listed in **Ch 4, ~~App~~Appendix 2**. In vertical bending moment analysis the target hull girder loads are the maximum vertical bending moments which may occur at the centre of the mid-hold in the *FE* model. The target values of hull girder loads are to be obtained in accordance with **Table 3** with considering still water vertical bending moments specified in **Ch 4, Sec-_7, Table 2**, and in **Ch 4, ~~App~~Appendix 2**.	Vertical bending moment analysis is to be performed for cases listed in **Ch 4, Sec 7, Table 2**, the minimum required cases being listed in **Ch 4, App 2**. In vertical bending moment analysis the target hull girder loads are the maximum vertical bending moments which may occur at the centre of the mid-hold in the *FE* model. The target values of hull girder loads are to be obtained in accordance with **Table 3** with considering still water vertical bending moments specified in **Ch 4, Sec 7, Table 2**, and in **Ch 4, App 2**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.5.3

Correction	Present	Note
Vertical shear force analysis is to be performed for cases listed in **Ch 4, Sec 7, Table 3**, the minimum required cases being listed in **Ch 4, ~~App~~Appendix 2**. In vertical shear force analysis the target hull girder loads are the maximum vertical shear force which may occur at one of the transverse bulkheads of the mid-hold in the *FE* model. Reduced vertical bending moments are considered simultaneously. The target values of hull girder loads are to be obtained in accordance with **Table 4** with considering still water vertical bending moments and shear forces specified in **Ch 4, Sec 7, Table 2** and **Ch 4, Sec 7, Table 3**, and in **Ch 4, ~~App~~Appendix 2**.	Vertical shear force analysis is to be performed for cases listed in **Ch 4, Sec 7, Table 3**, the minimum required cases being listed in **Ch 4, App 2**. In vertical shear force analysis the target hull girder loads are the maximum vertical shear force which may occur at one of the transverse bulkheads of the mid-hold in the *FE* model. Reduced vertical bending moments are considered simultaneously. The target values of hull girder loads are to be obtained in accordance with **Table 4** with considering still water vertical bending moments and shear forces specified in **Ch 4, Sec 7, Table 2** and **Ch 4, Sec 7, Table 3**, and in **Ch 4, App 2**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 3.3.2

Correction	Present	Note
The stresses in each panel are to be obtained according to the following procedures: 1) when the mesh model differs from the elementary plate panel geometry, the stresses σ_x~~ ,□σ~~, σ_y and τ acting on an elementary plate panel are to be evaluated by extrapolation and/or interpolation of surrounding meshes using the elements stresses or using the displacement based method described in ~~**App**~~**Ch 7, Appendix 2**. 2) stresses obtained from with superimposed or direct method have to be reduced for buckling assessment because of the Poisson effect, which is taken into consideration in both analysis methods. The correction has to be carried out after summation of stresses due to local and global loads. When the stresses σ_x^* and σ_y^* are both compressive stresses, a stress reduction is to be made according to the following formulae: $\sigma_x = (\sigma_x^* - 0.3\sigma_y^*)/0.91$ $\sigma_y = (\sigma_y^* - 0.3\sigma_x^*)/0.91$ Where compressive stress fulfils the condition $\sigma_y^* < 0.3\sigma_x^*$, then $\sigma_y = 0$ and $\sigma_x = \sigma_x^*$ Where compressive stress fulfils the condition $\sigma_x^* < 0.3\sigma_y^*$, then $\sigma_x = 0$ and $\sigma_y = \sigma_y^*$ σ_x^*, σ_y^* : Stresses containing the Poisson effect 3) determine stress distributions along edges of the considered buckling panel by introducing proper linear approximation as shown in **Fig. 2**. 4) calculate edge factor ψ according to **Ch 6, Sec 3**.	The stresses in each panel are to be obtained according to the following procedures: 1) when the mesh model differs from the elementary plate panel geometry, the stresses σ_x ,□σ_y and τ acting on an elementary plate panel are to be evaluated by extrapolation and/or interpolation of surrounding meshes using the elements stresses or using the displacement based method described in **App 2**. 2) stresses obtained from with superimposed or direct method have to be reduced for buckling assessment because of the Poisson effect, which is taken into consideration in both analysis methods. The correction has to be carried out after summation of stresses due to local and global loads. When the stresses σ_x^* and σ_y^* are both compressive stresses, a stress reduction is to be made according to the following formulae: $\sigma_x = (\sigma_x^* - 0.3\sigma_y^*)/0.91$ $\sigma_y = (\sigma_y^* - 0.3\sigma_x^*)/0.91$ Where compressive stress fulfils the condition $\sigma_y^* < 0.3\sigma_x^*$, then $\sigma_y = 0$ and $\sigma_x = \sigma_x^*$ Where compressive stress fulfils the condition $\sigma_x^* < 0.3\sigma_y^*$, then $\sigma_x = 0$ and $\sigma_y = \sigma_y^*$ σ_x^*, σ_y^* : Stresses containing the Poisson effect 3) determine stress distributions along edges of the considered buckling panel by introducing proper linear approximation as shown in **Fig. 2**. 4) calculate edge factor ψ according to **Ch 6, Sec 3**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 3 3.1.1

Correction	Present	Note
Von Mises equivalent stresses in plate elements and axial stresses in line elements within refined areas are not to exceed 280/k N/mm^2, where k is the material factor defined in ~~**Ch3**~~**Ch 3, Sec 1**. In case elements significantly smaller than the size defined in **2.3.2** are used, this criteria applies to the average stress of all elements included in an area corresponding to a single element having the size specified in **2.3.2**.	Von Mises equivalent stresses in plate elements and axial stresses in line elements within refined areas are not to exceed 280/k N/mm^2, where k is the material factor defined in **Ch3, Sec 1**. In case elements significantly smaller than the size defined in **2.3.2** are used, this criteria applies to the average stress of all elements included in an area corresponding to a single element having the size specified in **2.3.2**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 4 2.3.1

Correction	Present	Note
The boundary conditions specified in ~~**Sec2**~~**Sec 2, 2.3.1** are to be applied to the cargo hold model with localized very fine meshes or the mother model for sub-models. When using sub-models, nodal displacements or forces obtained from the mother model are to be applied to sub-models.	The boundary conditions specified in **Sec2, 2.3.1** are to be applied to the cargo hold model with localized very fine meshes or the mother model for sub-models. When using sub-models, nodal displacements or forces obtained from the mother model are to be applied to sub-models.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 1 2.2.1

Correction	Present	Note
Nominal stress is the stress in a structural component taking into account macro-geometric effects but disregarding the stress concentration due to structural discontinuities and to the presence of welds. Nominal stresses are to be obtained either with the coarse mesh *FE* analysis specified in **Ch 7, Sec 4**, or with the simplified procedure specified in ~~**Sec4**~~**Sec 4**.	Nominal stress is the stress in a structural component taking into account macro-geometric effects but disregarding the stress concentration due to structural discontinuities and to the presence of welds. Nominal stresses are to be obtained either with the coarse mesh *FE* analysis specified in **Ch 7, Sec 4**, or with the simplified procedure specified in **Sec4**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 1 3.2.2

Correction	Present	Note
In the case of fatigue assessment of hatch corners, only oblique sea is to be considered, taking into account the wave torsional moments defined in **Ch 4, Sec 3, ~~[~~3.4~~].~~.**	In the case of fatigue assessment of hatch corners, only oblique sea is to be considered, taking into account the wave torsional moments defined in **Ch 4, Sec 3, [3.4]**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 2 2.3.1

Correction	Present	Note
The equivalent notch stress range, in *N/mm*^{2}, for each loading condition is to be calculated with the following formula: $\Delta\sigma_{eq,j} = K_f \Delta\sigma_{equiv,j}$ where: $\Delta\sigma_{equiv,j}$: Equivalent hot spot stress range, in *N/mm*^{2}, in loading condition "*j*" obtained by **~~[~~2.3.2~~].~~.** K_f : Fatigue notch factor defined in **Table 1**.	The equivalent notch stress range, in *N/mm*^{2}, for each loading condition is to be calculated with the following formula: $\Delta\sigma_{eq,j} = K_f \Delta\sigma_{equiv,j}$ where: $\Delta\sigma_{equiv,j}$: Equivalent hot spot stress range, in *N/mm*^{2}, in loading condition "*j*" obtained by **[2.3.2]**. K_f : Fatigue notch factor defined in **Table 1**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 3 2.2.2

Correction	Present	Note
The hull girder hot spot stress, in *N/mm*^{2}, in load cases "*i*1" and "*i*2" for loading condition "(*k*)" is to be obtained from the following formula: $\sigma_{GW,i\,j(k)} = C_{WV,i\,j}\,\sigma_{WV,i\,j} - C_{WH,i\,j}\,\sigma_{WH,(k)} \cancel{(j = 1, 2)} \quad (j = 1, 2)$ where: $C_{WV,i1}$, $C_{WV,i2}$, $C_{WH,i1}$, $C_{WH,i2}$: Load combination factors for each load case defined in **Ch 4, Sec 4, 2.2** $\sigma_{WV,i1}$: Nominal hull girder stress, in *N/mm*^{2}, in	The hull girder hot spot stress, in *N/mm*^{2}, in load cases "*i*1" and "*i*2" for loading condition "(*k*)" is to be obtained from the following formula: $\sigma_{GW,i\,j(k)} = C_{WV,i\,j}\,\sigma_{WV,i\,j} - C_{WH,i\,j}\,\sigma_{WH,(k)} \quad (j = 1, 2)$ where: $C_{WV,i1}$, $C_{WV,i2}$, $C_{WH,i1}$, $C_{WH,i2}$: Load combination factors for each load case defined in **Ch 4, Sec 4, 2.2** $\sigma_{WV,i1}$: Nominal hull girder stress, in *N/mm*^{2}, in	Reference correction

sagging condition induced by vertical wave bending moment $\sigma_{WV,i1} = \frac{M_{WV,S}(z-N)}{I_Y} 10^{-3}$ $\sigma_{WV,i2}$: Nominal hull girder stress, in N/mm^2, in hogging condition induced by vertical wave bending moment $\sigma_{WV,i2} = \frac{M_{WV,H}(z-N)}{I_Y} 10^{-3}$ $M_{WV,H}$, $M_{WV,S}$: Vertical wave bending moments, in kN-m, in hogging and sagging conditions defined in **Ch 4, Sec 3, 3.1.1**, with $f_p = 0.5$ N : Z co-ordinate, in m, of the neutral axis, as defined in **Ch 5, Sec 1** z : Z co-ordinate, in m, of the point considered $\sigma_{WH,(k)}$: Nominal hull girder stress, in N/mm^2, induced by horizontal wave bending moment $\sigma_{WH,(k)} = \frac{M_{WH,(k)}\, y}{I_Z} 10^{-3}$ $M_{WH,(k)}$: Horizontal wave bending moment, in kN-m, in loading condition "(k)"defined in **Ch 4, Sec 3, ~~[~~3.3.1~~]~~**, with $f_p = 0.5$ y : Y co-ordinate, in m, of the point considered, to be taken positive at port side and negative at starboard side I_Y, I_Z :Net moments of inertia of hull cross-section, in m^4, about transverse and vertical axis respectively, as defined in **Ch 5, Sec 1**.	sagging condition induced by vertical wave bending moment $\sigma_{WV,i1} = \frac{M_{WV,S}(z-N)}{I_Y} 10^{-3}$ $\sigma_{WV,i2}$: Nominal hull girder stress, in N/mm^2, in hogging condition induced by vertical wave bending moment $\sigma_{WV,i2} = \frac{M_{WV,H}(z-N)}{I_Y} 10^{-3}$ $M_{WV,H}$, $M_{WV,S}$: Vertical wave bending moments, in kN-m, in hogging and sagging conditions defined in **Ch 4, Sec 3, 3.1.1**, with $f_p = 0.5$ N : Z co-ordinate, in m, of the neutral axis, as defined in **Ch 5, Sec 1** z : Z co-ordinate, in m, of the point considered $\sigma_{WH,(k)}$: Nominal hull girder stress, in N/mm^2, induced by horizontal wave bending moment $\sigma_{WH,(k)} = \frac{M_{WH,(k)}\, y}{I_Z} 10^{-3}$ $M_{WH,(k)}$: Horizontal wave bending moment, in kN-m, in loading condition "(k)"defined in **Ch 4, Sec 3, [3.3.1]**, with $f_p = 0.5$ y : Y co-ordinate, in m, of the point considered, to be taken positive at port side and negative at starboard side I_Y, I_Z :Net moments of inertia of hull cross-section, in m^4, about transverse and vertical axis respectively, as defined in **Ch 5, Sec 1**.	

Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 4 3.3.3

Correction	Present	Note
The hot spot stress due to hydrostatic and hydrodynamic pressure, in *N/mm*^{2}, in loading condition “(*k*)” is to be obtained with the following formula: $\sigma_{LS,\,(k)} = \dfrac{K_{gl} K_s \left\{ p_{S,\,(k)} + \dfrac{p_{CW,\,i\,1(k)} + p_{CW,\,i\,2(k)}}{2} \right\} s\ell^2 \left(1 - \dfrac{6x_f}{\ell} + \dfrac{6{x_f}^2}{\ell^2} \right)}{12w} \cdot 10^3$ where: $p_{S,\,(k)}$: Hydrostatic pressure, in *kN/m*^{2}, in loading condition “(*k*)” specified in **Ch 4, Sec 5, 1.2**. $p_{CW,\mathrm{ij}\,(k)}$: Corrected hydrodynamic pressure, in *kN/m*^{2}, according to **2.3.3**, with f_p = 0.5, in load case “*i*1” and “*i*2” for loading condition “(*k*)”. *i* : Suffix which denotes the load case specified in **Sec 2**~~ [~~**, 2.1.1**~~]~~, when calculating the mean stress, "*I*" is to be used.	The hot spot stress due to hydrostatic and hydrodynamic pressure, in *N/mm*^{2}, in loading condition “(*k*)” is to be obtained with the following formula: $\sigma_{LS,\,(k)} = \dfrac{K_{gl} K_s \left\{ p_{S,\,(k)} + \dfrac{p_{CW,\,i\,1(k)} + p_{CW,\,i\,2(k)}}{2} \right\} s\ell^2 \left(1 - \dfrac{6x_f}{\ell} + \dfrac{6{x_f}^2}{\ell^2} \right)}{12w} \cdot 10^3$ where: $p_{S,\,(k)}$: Hydrostatic pressure, in *kN/m*^{2}, in loading condition “(*k*)” specified in **Ch 4, Sec 5, 1.2**. $p_{CW,\mathrm{ij}\,(k)}$: Corrected hydrodynamic pressure, in *kN/m*^{2}, according to **2.3.3**, with f_p = 0.5, in load case “*i*1” and “*i*2” for loading condition “(*k*)”. *i* : Suffix which denotes the load case specified in **Sec 2 [2.1.1]**, when calculating the mean stress, "*I*" is to be used.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 10 Section 1 10.1.3

Correction	Present	Note
The welded joint between the rudder stock (with thickened collar, see ~~**Ch11**~~**Ch 11, Sec 2**) and the flange is to be made in accordance with **Fig. 21**.	The welded joint between the rudder stock (with thickened collar, see **Ch11**, **Sec 2**) and the flange is to be made in accordance with **Fig. 21**.	Reference correction

Rules for the survey and construction of steel ships Part CSR-B Chapter 11 Section 2 Table 1

Correction	Present	Note
		Reference correction

Table 1 Categories of Fillet Welds

Category	Kinds of fillet welds	As-built thickness of abutting plate, t, in $mm^{(1)}$	Leg length of fillet weld, in $mm^{(2),(3)}$	Length of fillet welds, in mm	Pitch, in mm
$F0$	Double continuous weld	t	$0.7t$	-	-
$F1$	Double continuous weld	$t \le 10$	$0.5t + 1.0$	-	-
		$10 \le t < 20$	$0.4t + 2.0$	-	-
		$20 \le t$	$0.3t + 4.0$	-	-
$F2$	Double continuous weld	$t \le 10$	$0.4t + 1.0$	-	-
		$10 \le t < 20$	$0.3t + 2.0$	-	-
		$20 \le t$	$0.2t + 4.0$	-	-
$F3$	Double continuous weld	$t \le 10$	$0.3t + 1.0$	-	-
		$10 \le t < 20$	$0.2t + 2.0$		
		$20 \le t$	$0.1t + 4.0$		
$F4$	Intermittent weld	$t \le 10$	$0.5t + 1.0$	75	300
		$10 \le t < 20$	$0.4t + 2.0$		
		$20 \le t$	$0.3t + 4.0$		

(1) t is as-built thickness of the abutting plate, in mm. In case of cross joint as specified in **Fig. 1**, t is the thinner thickness of the continuous member and the abutting plate, to be considered independently for each abutting plate.

(2) Leg length of fillet welds is made fine adjustments corresponding to the corrosion addition t_C specified in **~~Ch3~~Ch 3, Sec 3, Table 1** as follows:

$+ 1.0\ mm$	for $t_C > 5$
$+ 0.5\ mm$	for $5 \ge t_C > 4$
$+ 0.0\ mm$	for $4 \ge t_C > 3$
$- 0.5\ mm$	for $t_C \le 3$

(3) Leg length is rounded to the nearest half millimetre.

Rules for the survey and construction of steel ships Part CSR-T Section 3 3.2.1.2

Correction	Present	Note
3.2.1.2 An appropriate term to indicate that the plans, reports or documents have been reviewed for compliance with this part will be used according to the ~~**REGULATIONS FOR THE CLASSFICATION AND REGISTRY OF SHIPS**~~**Regulations for the Classification and Registry of Ships**.	3.2.1.2 An appropriate term to indicate that the plans, reports or documents have been reviewed for compliance with this part will be used according to **the REGULATIONS FOR THE CLASSFICATION AND REGISTRY OF SHIPS**.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 4 1.5.1.1

Correction	Present	Note
1.5.1.1 ~~**Fig**~~**Figs. 4.1.2**, **4.1.3** and **4.1.4** show the common structural nomenclature used within this Part.	1.5.1.1 **Fig. 4.1.2**, **4.1.3** and **4.1.4** show the common structural nomenclature used within this Part.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 4 2.4.3.2

Correction	Present	Note
2.4.3.2 The effective net plastic section modulus, Z_{pl-net}, of local support members is to be taken as: $Z_{pl-net} = \frac{f_w \, d_w{}^2 \, t_{w-net} \sin\varphi_w}{2000} + \frac{(2\,\gamma - 1)\, A_{f-net}\left(h_{f-ctr} \sin\phi_w - b_{f-ctr} \cos\varphi_w\right)}{1000}$ (cm^3) Where: f_w : web shear stress factor = 0.75 for flanged profile cross-sections with n = 1 or 2 = 1.0 for flanged profile cross-sections with n = 0 and for flat bar stiffeners n : number of moment effective end supports of each member = 0, 1 or 2 A moment effective end support may be considered where: (a) the stiffener is continuous at the support (b) the stiffener passes through the support plate while it is connected at it's termination point by a carling (or equivalent) to adjacent stiffeners (c) the stiffener is attached to a abutting stiffener effective in bending (not a buckling stiffener) or bracket. The bracket is assumed to be bending effective when it is attached to another stiffener (not a buckling stiffener). d_w : depth of stiffener web, in *mm*	2.4.3.2 The effective net plastic section modulus, Z_{pl-net}, of local support members is to be taken as: $Z_{pl-net} = \frac{f_w \, d_w{}^2 \, t_{w-net} \sin\varphi_w}{2000} + \frac{(2\,\gamma - 1)\, A_{f-net}\left(h_{f-ctr} \sin\phi_w - b_{f-ctr} \cos\varphi_w\right)}{1000}$ (cm^3) Where: f_w : web shear stress factor = 0.75 for flanged profile cross-sections with n = 1 or 2 = 1.0 for flanged profile cross-sections with n = 0 and for flat bar stiffeners n : number of moment effective end supports of each member = 0, 1 or 2 A moment effective end support may be considered where: (a) the stiffener is continuous at the support (b) the stiffener passes through the support plate while it is connected at it's termination point by a carling (or equivalent) to adjacent stiffeners (c) the stiffener is attached to a abutting stiffener effective in bending (not a buckling stiffener) or bracket. The bracket is assumed to be bending effective when it is attached to another stiffener (not a buckling stiffener). d_w : depth of stiffener web, in *mm*	Wording correction

$= h_{stf} - t_{f-net}$ for T, L (rolled and built up) and L2 profiles $= h_{stf}$ for flat bar and L3 profiles to be taken as given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles h_{stf} : stiffener height, in *mm*, see **Fig. 4.2.12** γ $= 0.25\left(1 + \sqrt{3 + 12\beta}\right)$ β = 0.5 for all cases, except L profiles without a mid span tripping bracket $= \frac{10^6 t^2_{w-net} f_b\ l_f^2}{80\ b_f^2 t_{f-net}\ h_{f-ctr}} + \frac{t_{w-net}}{2\,b_f}$ but not to be taken greater than 0.5 for L (rolled and built-up) profiles without a mid span tripping bracket A_{f-net} : net cross-sectional area of flange, in mm^2 $= b_f\, t_{f-net}$ in general = 0 for flat bar stiffeners b_f : breadth of flange, in *mm*, see **Fig. 4.2.12**. For bulb profiles, see **Table 4.2.3** and **Table 4.2.4** b_{f-ctr} : distance from mid thickness of stiffener web to the centre of the flange area $= 0.5\,(b_f - t_{w-grs})$ for rolled angle profiles = 0 for T profiles as given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles h_{f-ctr} : height of stiffener measured to the mid thickness of the flange $= h_{stf} - 0.5\ t_{f-net}$ for profiles with	$= h_{stf} - t_{f-net}$ for T, L (rolled and built up) and L2 profiles $= h_{stf}$ for flat bar and L3 profiles to be taken as given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles h_{stf} : stiffener height, in *mm*, see **Fig. 4.2.12** γ $= 0.25\left(1 + \sqrt{3 + 12\beta}\right)$ β = 0.5 for all cases, except L profiles without a mid span tripping bracket $= \frac{10^6 t^2_{w-net} f_b\ l_f^2}{80\ b_f^2 t_{f-net}\ h_{f-ctr}} + \frac{t_{w-net}}{2\,b_f}$ but not to be taken greater than 0.5 for L (rolled and built-up) profiles without a mid span tripping bracket A_{f-net} : net cross-sectional area of flange, in mm^2 $= b_f\, t_{f-net}$ in general = 0 for flat bar stiffeners b_f : breadth of flange, in *mm*, see **Fig. 4.2.12**. For bulb profiles, see **Table 4.2.3** and **Table 4.2.4** b_{f-ctr} : distance from mid thickness of stiffener web to the centre of the flange area $= 0.5\,(b_f - t_{w-grs})$ for rolled angle profiles = 0 for T profiles as given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles h_{f-ctr} : height of stiffener measured to the mid thickness of the flange $= h_{stf} - 0.5\ t_{f-net}$ for profiles with	

flange of rectangular shape except for L3 profiles $= h_{stf} - d_{edge} - 0.5\ t_{f\text{-}net}$ for L3 profiles as given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles d_{edge} : distance from upper edge of web to the top of the flange, in *mm*. For L3 profiles, see **Fig. 4.2.12** f_b =1.0 in general =0.8 for continuous flanges with end bracket(s). A continuous flange is defined as a flange that is not sniped and continuous through the primary support member =0.7 for non-continuous flanges with end bracket(s). A non-continuous flange is defined as a flange that is sniped at the primary support member or terminated at the support without aligned structure on the other side of the support l_f : length of stiffener flange between supporting webs, in *m*, but reduced by the arm length of end bracket(s) for stiffeners with end bracket(s) fitted $t_{f\text{-}net}$: net flange thickness, in *mm* = 0 for flat bar stiffeners given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles $t_{w\text{-}net}$: net web thickness, in *mm*	flange of rectangular shape except for L3 profiles $= h_{stf} - d_{edge} - 0.5\ t_{f\text{-}net}$ for L3 profiles as given in **Table 4.2.3** and **4.2.4** for bulb profiles d_{edge} : distance from upper edge of web to the top of the flange, in *mm*. For L3 profiles, see **Fig. 4.2.12** f_b =1.0 in general =0.8 for continuous flanges with end bracket(s). A continuous flange is defined as a flange that is not sniped and continuous through the primary support member =0.7 for non-continuous flanges with end bracket(s). A non-continuous flange is defined as a flange that is sniped at the primary support member or terminated at the support without aligned structure on the other side of the support l_f : length of stiffener flange between supporting webs, in *m*, but reduced by the arm length of end bracket(s) for stiffeners with end bracket(s) fitted $t_{f\text{-}net}$: net flange thickness, in *mm* = 0 for flat bar stiffeners given in **Table 4.2.3** and **Table 4.2.4** for bulb profiles $t_{w\text{-}net}$: net web thickness, in *mm*	

φ_w : angle between the stiffener web and the plate flange, see **Fig. 4.2.14**, in *degrees*. φ_w is to be taken as 90 *degrees* if the angle is greater than or equal to 75 *degrees*	φ_w : angle between the stiffener web and the plate flange, see **Fig. 4.2.14**, in *degrees*. φ_w is to be taken as 90 *degrees* if the angle is greater than or equal to 75 *degrees*	

Rules for the survey and construction of steel ships Part CSR-T Section 4 3.4.3.4

Correction	Present	Note
3.4.3.4 The load, W_2, transmitted through the primary support member web stiffener is to be taken as follows. If the web stiffener is connected to the intersecting stiffener: $W_2 = W\left(1 - \alpha_a - \frac{A_{1-net}}{4f_cA_{w-net}+A_{1-net}}\right)$ (*kN*) If the web stiffener is not connected to the intersecting stiffener: $W_2 = 0$ Where: W : the total load, in *kN*, as defined in **3.4.3-.2** α_a : panel aspect ratio $= \frac{s}{1000\,S}$ S : primary support member spacing, in *m* s : stiffener spacing, in *mm* A_{1-net} : effective net shear area of the connection, in cm^2, as defined in **3.4.3.3** f_c : collar load factor, as defined in **3.4.3.3** A_{w-net} : effective net cross-sectional area of the primary support member web stiffener , in cm^2, as defined in **3.4.3.3**	3.4.3.4 The load, W_2, transmitted through the primary support member web stiffener is to be taken as follows. If the web stiffener is connected to the intersecting stiffener: $W_2 = W\left(1 - \alpha_a - \frac{A_{1-net}}{4f_cA_{w-net}+A_{1-net}}\right)$ (*kN*) If the web stiffener is not connected to the intersecting stiffener: $W_2 = 0$ Where: W : the total load, in *kN*, as defined in **3.4.3 2** α_a : panel aspect ratio $= \frac{s}{1000\,S}$ S : primary support member spacing, in *m* s : stiffener spacing, in *mm* A_{1-net} : effective net shear area of the connection, in cm^2, as defined in **3.4.3.3** f_c : collar load factor, as defined in **3.4.3.3** A_{w-net} : effective net cross-sectional area of the primary support member web stiffener , in cm^2, as defined in **3.4.3.3**	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 7 6.3.8.2

Correction	Present	Note
6.3.8.2 The simultaneously acting dynamic vertical force for heavy units, F_{dk-dyn}, acting on supporting structures and securing systems for heavy units of cargo, equipment or structural components, is to be taken as: $F_{dk-dyn} = f_{\beta} f_{v-mid} F_v$ (*kN*) Where: F_v : envelope vertical dynamic load from heavy units, in *kN*, as defined in **3.5.6** f_{v-mid} : dynamic load combination factor for vertical acceleration for the considered dynamic load case, see **Table 7.6.2** and **Table 7.6.4** to **Table 7.6.9** f_{β} : heading correction factor, as defined in **6.3.1.1**	6.3.8.2 The simultaneously acting dynamic vertical force for heavy units, F_{dk-dyn}, acting on supporting structures and securing systems for heavy units of cargo, equipment or structural components, is to be taken as: $F_{dk-dyn} = f_{\beta} f_{v-mid} F_v$ (*kN*) Where: F_v : envelope vertical dynamic load from heavy units, in *kN*, as defined in **3.5.6** f_{v-mid} : dynamic load combination factor for vertical acceleration for the considered dynamic load case, see **Table 7.6.2** and **Table 7.6.4** to **7.6.9** f_{β} : heading correction factor, as defined in **6.3.1.1**	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 1.3.4.2

Correction	Present	Note
1.3.4.2 The total stringer supporting force, $F_{str\text{-}k}$, in way of a longitudinal bulkhead is to be taken as: $F_{str-k} = \frac{P_{str} b_{str}(h_k+h_{k-1})}{2}$ (*kN*) Where: P_{str} : pressure on stringer, in *kN/m*^{2}, to be taken as $10h_{tt}$ h_{tt} : the height from the top of the tank to the midpoint of the load area between $h_k/2$ below the stringer and $h_{k-1}/2$ above the stringer, in *m* h_k : the vertical distance from the considered stringer to the stringer below. For the lowermost stringer, it is to be taken as 80 % of the average vertical distance to the inner bottom, in *m* h_{k-1} : the vertical distance from the considered stringer to the stringer above. For the uppermost stringer, it is to be taken as 80 % of the average vertical distance to the upper deck, in *m* b_{str} : load breadth acting on the stringer, in *m*, see **~~Fig~~Figs. 8.1.7** and **8.1.8**	1.3.4.2 The total stringer supporting force, $F_{str\text{-}k}$, in way of a longitudinal bulkhead is to be taken as: $F_{str-k} = \frac{P_{str} b_{str}(h_k+h_{k-1})}{2}$ (*kN*) Where: P_{str} : pressure on stringer, in *kN/m*^{2}, to be taken as $10h_{tt}$ h_{tt} : the height from the top of the tank to the midpoint of the load area between $h_k/2$ below the stringer and $h_{k-1}/2$ above the stringer, in *m* h_k : the vertical distance from the considered stringer to the stringer below. For the lowermost stringer, it is to be taken as 80 % of the average vertical distance to the inner bottom, in *m* h_{k-1} : the vertical distance from the considered stringer to the stringer above. For the uppermost stringer, it is to be taken as 80 % of the average vertical distance to the upper deck, in *m* b_{str} : load breadth acting on the stringer, in *m*, see **Fig. 8.1.7** and **8.1.8**	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 2.1.4.8

Correction	Present	Note
2.1.4.8 Enlarged stiffeners (with or without web stiffening) used for Permanent Means of Access (*PMA*) are to comply with the following requirements: (a) Buckling strength including proportion (slenderness ratio) requirements for primary support members as follows: ・For stiffener web, see **Section 10/2.3.1.1(a)**, **10/3.2**. ・For stiffener flange, see **Section 10/2.3.1.1(b)**, **10/2.3.3.1**. ・For web stiffeners, see **Section 10/2.3.2.1**, **10/2.3.2.2**, **10/3.3**. Note: **Note 1** of ~~**table**~~**Table 10.2.1** is not applicable. (b) Buckling strength of longitudinal *PMA* platforms without web stiffeners may also be ensured using the criteria for local support members in **Section 10/2.2** and **Section 10/3.3**, including **Note 1** of **Table 10.2.1**, provided shear buckling strength of web is verified in line with **Section 10/3.2**. (c) All other requirements for local support members as follows: ・Corrosion additions: requirements for local support members ・Minimum thickness: requirements for local support members ・Fatigue: requirements for local support members Note: For primary support members (or part of it) used as a *PMA* platform the requirements for primary support members are to be applied.	2.1.4.8 Enlarged stiffeners (with or without web stiffening) used for Permanent Means of Access (*PMA*) are to comply with the following requirements: (a) Buckling strength including proportion (slenderness ratio) requirements for primary support members as follows: ・For stiffener web, see **Section 10/2.3.1.1(a)**, **10/3.2**. ・For stiffener flange, see **Section 10/2.3.1.1(b)**, **10/2.3.3.1**. ・For web stiffeners, see **Section 10/2.3.2.1**, **10/2.3.2.2**, **10/3.3**. Note: **Note 1** of **table 10.2.1** is not applicable. (b) Buckling strength of longitudinal *PMA* platforms without web stiffeners may also be ensured using the criteria for local support members in **Section 10/2.2** and **Section 10/3.3**, including **Note 1** of **Table 10.2.1**, provided shear buckling strength of web is verified in line with **Section 10/3.2**. (c) All other requirements for local support members as follows: ・Corrosion additions: requirements for local support members ・Minimum thickness: requirements for local support members ・Fatigue: requirements for local support members Note: For primary support members (or part of it) used as a *PMA* platform the requirements for primary support members are to be applied.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 2.6.1.7

Correction	Present	Note
2.6.1.7 Webs of the primary support members are to have a depth of not less than given by the requirements of **2.6.4.1**, **2.6.6.1** and **2.6.7.1**, as applicable. Lesser depths may be accepted where equivalent stiffness is demonstrated. See **Section 3/5.3.3.4**. Primary support members that have open slots for stiffeners are to have a depth not less than 2.5 *times* the depth of the slots.	2.6.1.7 Webs of the primary support members are to have a depth of not less than given by the requirements of **2.6.4.1**, **2.6.6.1** and **2.6.7.1**, as applicable. Lesser depths may be accepted where equivalent stiffness is demonstrated. See **3/5.3.3.4**. Primary support members that have open slots for stiffeners are to have a depth not less than 2.5 *times* the depth of the slots.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.3

Correction	Present	Note
6.2.5.3 The net section modulus, Z_{net}, of each individual stiffener on the web plating of primary support members subjected to sloshing pressures is not to be less than: $Z_{net} = \frac{P_{slh}\ s\ {l_{bdg}}^2}{f_{bdg}\ C_s\ \sigma_{yd}}$ (cm^3) Where: P_{slh} : the greater of $P_{slh-lng}$, P_{slh-t}, P_{slh-wf}, $P_{slh-grd}$ or $P_{slh-min}$ as specified in **6.2.2**. The pressure is to be calculated at the load application point taking into account the distribution over the height of the member, as shown in ~~**Fig.**~~ **Figs. 8.6.1** and **8.6.2**. s : stiffener spacing, in *mm*, as defined in **Section 4/2.2** l_{bdg} : effective bending span, in *m*, of web stiffener as defined in **Section 4/2.1** C_s : permissible bending stress coefficient as given in **Table 8.6.2** f_{bdg} : bending moment factor = 12 for stiffeners fixed against rotation at each end. This is generally to be applied for scantlings of all continuous stiffeners = 8 for stiffeners with one or both ends not fixed against rotation. This is generally to be applied to discontinuous stiffeners for other configurations the bending moment factor may be taken as given in **Table 8.3.5** σ_{yd} : specified minimum yield stress of the material, in *N/mm²*	6.2.5.3 The net section modulus, Z_{net}, of each individual stiffener on the web plating of primary support members subjected to sloshing pressures is not to be less than: $Z_{net} = \frac{P_{slh}\ s\ {l_{bdg}}^2}{f_{bdg}\ C_s\ \sigma_{yd}}$ (cm^3) Where: P_{slh} : the greater of $P_{slh-lng}$, P_{slh-t}, P_{slh-wf}, $P_{slh-grd}$ or $P_{slh-min}$ as specified in **6.2.2**. The pressure is to be calculated at the load application point taking into account the distribution over the height of the member, as shown in **Fig. 8.6.1** and **8.6.2**. s : stiffener spacing, in *mm*, as defined in **Section 4/2.2** l_{bdg} : effective bending span, in *m*, of web stiffener as defined in **Section 4/2.1** C_s : permissible bending stress coefficient as given in **Table 8.6.2** f_{bdg} : bending moment factor = 12 for stiffeners fixed against rotation at each end. This is generally to be applied for scantlings of all continuous stiffeners = 8 for stiffeners with one or both ends not fixed against rotation. This is generally to be applied to discontinuous stiffeners for other configurations the bending moment factor may be taken as given in **Table 8.3.5** σ_{yd} : specified minimum yield stress of the material, in *N/mm²*	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.4

Correction	Present	Note
6.2.5.4 The net section modulus, Z_{net}, in way of the base of tripping brackets supporting primary support members in cargo and ballast tanks is not to be less than: $Z_{net} = \frac{1000\, P_{slh}\, s_{trip}\, l_{trip}^2}{2\, C_s\, \sigma_{yd}}$ (cm^3) Where: P_{sl} : the greater of $P_{slh-lng}$, $P_{slh\text{-}t}$, $P_{slh\text{-}wf}$, $P_{slh-grd}$ and $P_{slh\text{-}min}$ as defined in **6.2.2**. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in ~~Fig~~Figs**. 8.6.1** and **8.6.2** s_{tri} : mean spacing, between tripping brackets or other primary support members or bulkheads, in *m* l_{tri} : length of tripping bracket, see **Fig. 8.6.3**, in *m* C_s : permissible bending stress coefficient for tripping brackets = 0.75 σ_y : specified minimum yield stress of the material, in N/mm^2 6.2.5.4bis The effective breadth of the attached plate to be used for calculating the section modulus of the tripping bracket supporting primary support members is to be taken as 1/3 the length of the tripping bracket, l_{trip}, as given in **8/6.2.5.4**.	6.2.5.4 The net section modulus, Z_{net}, in way of the base of tripping brackets supporting primary support members in cargo and ballast tanks is not to be less than: $Z_{net} = \frac{1000\, P_{slh}\, s_{trip}\, l_{trip}^2}{2\, C_s\, \sigma_{yd}}$ (cm^3) Where: P_{slh} : the greater of $P_{slh-lng}$, $P_{slh\text{-}t}$, $P_{slh\text{-}wf}$, $P_{slh-grd}$ and $P_{slh\text{-}min}$ as defined in **6.2.2**. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in **Fig. 8.6.1** and **8.6.2** s_{trip} : mean spacing, between tripping brackets or other primary support members or bulkheads, in *m* l_{trip} : length of tripping bracket, see **Fig. 8.6.3**, in *m* C_s : permissible bending stress coefficient for tripping brackets = 0.75 σ_{yd} : specified minimum yield stress of the material, in N/mm^2 6.2.5.4bis The effective breadth of the attached plate to be used for calculating the section modulus of the tripping bracket supporting primary support members is to be taken as 1/3 the length of the tripping bracket, l_{trip}, as given in **8/6.2.5.4**.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.5

Correction	Present	Note
6.2.5.5 The net shear area, $A_{shr-net}$, after deduction of cut-outs and slots, of tripping brackets supporting primary support members in cargo and ballast tanks is not to be less than: $A_{shr-net} = 10\frac{P_{slh}\ s_{trip}\ l_{trip}}{C_t\tau_{yd}}$ (cm^2) Where: P_{slh} : the greater of $P_{slh-lng}$, P_{slh-t}, P_{slh-wf}, $P_{slh-grd}$ and $P_{slh-min}$ as defined in **6.2.2**. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in ~~Fig~~Figs. **8.6.1** and **8.6.2** s_{trip} : mean spacing, between tripping brackets or other primary support members or bulkheads, in m l_{trip} : length of tripping bracket, see **Fig. 8.6.3**, in m C_t : permissible shear stress coefficient, as given in **Table 8.6.3** τ_{yd} $=\frac{\sigma_{yd}}{\sqrt{3}}$ (N/mm^2) σ_{yd} : specified minimum yield stress of the material, in N/mm^2	6.2.5.5 The net shear area, $A_{shr-net}$, after deduction of cut-outs and slots, of tripping brackets supporting primary support members in cargo and ballast tanks is not to be less than: $A_{shr-net} = 10\frac{P_{slh}\ s_{trip}\ l_{trip}}{C_t\tau_{yd}}$ (cm^2) Where: P_{sl} : the greater of $P_{slh-lng}$, P_{slh-t}, P_{slh-wf}, $P_{slh-grd}$ and $P_{slh-min}$ as defined in **6.2.2**. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in **Fig. 8.6.1** and **8.6.2** s_{tri} : mean spacing, between tripping brackets or other primary support members or bulkheads, in m l_{tri} : length of tripping bracket, see **Fig. 8.6.3**, in m C_t : permissible shear stress coefficient, as given in **Table 8.6.3** τ_{yd} $=\frac{\sigma_{yd}}{\sqrt{3}}$ (N/mm^2) σ_y : specified minimum yield stress of the material, in N/mm^2	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 8 6.3.8.1

Correction	Present	Note
6.3.8.1 Longitudinals are, in general, to be continuous. Where this not practicable end brackets complying with Section **4/3.2.3** are to be provided.	6.3.8.1 Longitudinals are, in general, to be continuous. Where this not practicable end brackets complying with **4/3.2.3** are to be provided.	Wording correction

Rules for the survey and construction of steel ships Part CSR-T Section 11 3.3.2.1

Correction	Present	Note
3.3.2.1 Bilge keels, where fitted, are to be attached to the shell by a ground bar, or doubler, as shown in ~~Fig~~Figs. **11.3.4** and **11.3.5**. In general, the ground bar is to be continuous.	3.3.2.1 Bilge keels, where fitted, are to be attached to the shell by a ground bar, or doubler, as shown in **Fig. 11.3.4** and **11.3.5**. In general, the ground bar is to be continuous.	Wording correction

Rules for the survey and construction of steel ships Part CSR-B&T Part 1 Chapter 1 Section 1 2.2.1

Correction	Present	Note
2.2.1 Part 1 **Part 1** of the Rules provides requirements common to all ship types as follow: ・ Chapter 1: Rule General Principles. ・ Chapter 2: General Arrangement Design. ・ Chapter 3: Structural Design Principles. ・ Chapter 4: Loads. ・ Chapter 5: Hull Girder Strength. ・ Chapter 6: Hull Local Scantling. ・ Chapter 7: Direct Strength Analysis. ・ Chapter 8: Buckling. ・ Chapter 9: Fatigue. ・ Chapter 10: Other Structure. ・ Chapter 11: Superstructure, Deckhouses and Hull Outfitting. ・ Chapter 12: Construction. ・ Chapter 13: Ship in Operation - Renewal Criteria. The provisions of the **Ch 1**, **2**, **3**, **4**, **5**, **6**, **8**, **12**, **13** and **Ch 10, Sec 4** are applicable all over the ships length. The **Ch 7**, **9**, **10** and **Ch 11** define their own scope of application.	2.2.1 Part 1 **Part 1** of the Rules provides requirements common to all ship types as follow: ・ Chapter 1: Rule General Principles. ・ Chapter 2: General Arrangement Design. ・ Chapter 3: Structural Design Principles. ・ Chapter 4: Loads. ・ Chapter 5: Hull Girder Strength. ・ Chapter 6: Hull Local Scantling. ・ Chapter 7: Direct Strength Analysis. ・ Chapter 8: Buckling. ・ Chapter 9: Fatigue. ・ Chapter 10: Other Structure. ・ Chapter 11: Superstructure, Deckhouses and Hull Outfitting. ・ Chapter 12: Construction. ・ Chapter 13: Ship in Operation - Renewal Criteria. The provisions of the **Ch 1**, **2**, **3**, **4**, **5**, **6**, **8**, **12**, **13** and **Ch 10, Sec 4** are applicable all over the ships length. The **Ch 7**, **9**, **10** and **11** define their own scope of application.	Wording correction

Rules for the survey and construction of steel ships Part CSR-B&T Part 1 Chapter 12 Section 3 Table 5

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table 5 Connections of Bilge Keels
<table>
<tr><th rowspan="2">Structural items being joined</th><th colspan="2">Leg length of weld, in <i>mm</i></th></tr>
<tr><th>At ends(1)</th><th>Elsewhere</th></tr>
<tr><td>Ground bar to the shell</td><td>0.62 t_{1as_built}</td><td>0.48 t_{1as_built}</td></tr>
<tr><td>Bilge keel web to ground bar</td><td>0.48 t_{2as_built}</td><td>0.30 t_{2as_built}</td></tr>
<tr><td colspan="3">t_{1as_built} : As-built thickness of ground bar, in <i>mm</i>.
t_{2as_built} : As-built thickness of web of bilge keel, in <i>mm</i>.
(1) Zone “B” in Pt 1 Ch 3 Sec 6 Fig. 19 and Fig. 20 ~~in Pt 1 Ch 3 Sec 6~~ for definition of “ends”</td></tr>
</table>
</td>
<td>
Table 5 Connections of Bilge Keels
<table>
<tr><th rowspan="2">Structural items being joined</th><th colspan="2">Leg length of weld, in <i>mm</i></th></tr>
<tr><th>At ends(1)</th><th>Elsewhere</th></tr>
<tr><td>Ground bar to the shell</td><td>0.62 t_{1as_built}</td><td>0.48 t_{1as_built}</td></tr>
<tr><td>Bilge keel web to ground bar</td><td>0.48 t_{2as_built}</td><td>0.30 t_{2as_built}</td></tr>
<tr><td colspan="3">t_{1as_built} : As-built thickness of ground bar, in <i>mm</i>.
t_{2as_built} : As-built thickness of web of bilge keel, in <i>mm</i>.
(1) Zone “B” in Fig. 19 and Fig. 20 in Pt 1 Ch 3 Sec 6 for definition of “ends”</td></tr>
</table>
</td>
<td>Wording correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part CS Chapter 23 23.2.5

Correction	Present	Note
3 The minimum breaking load and the number of mooring lines for ships with an equipment number greater than 2,000 (EN > 2,000) are to be in accordance with **Chapter ~~27~~14, Part 1, Part C of the Rules**.	**3** The minimum breaking load and the number of mooring lines for ships with an equipment number greater than 2,000 (EN > 2,000) are to be in accordance with **Chapter 27, Part C of the Rules**.	Reference correction

Rules for the survey and construction of steel ships Part CS Chapter 23 23.2.5

Correction	Present	Note
3 All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with the requirements in **4.2.43-1.** and **4.~~3.3~~2.4, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60℃, the requirements may be suitably modified.	**3** All areas where there are cargo oil pumps and cargo oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with the requirements in **4.2.4** and **4.3.3, Part H** or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a flash point above 60℃, the requirements may be suitably modified.	Reference correction

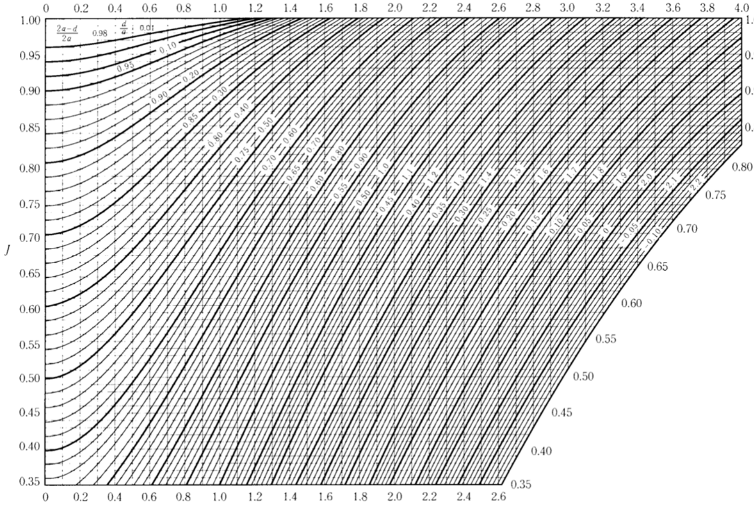
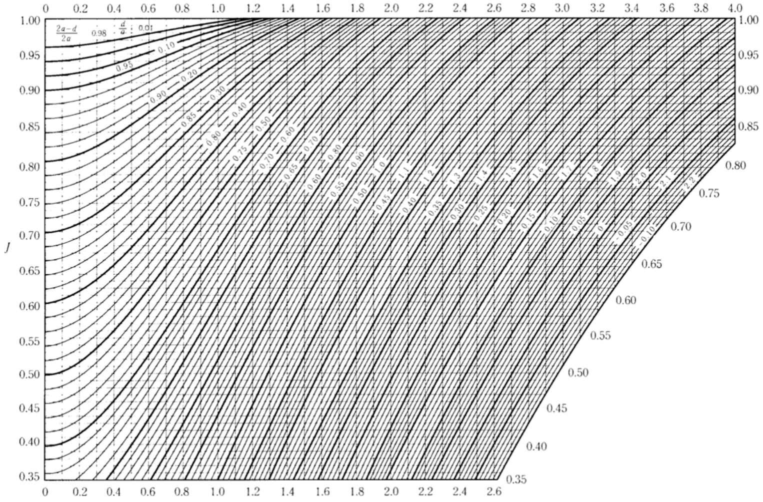
Rules for the survey and construction of steel ships Part D Chapter 7 7.2.1-1

Correction	Present	Note
1 The thickness of the propeller blades at a radius of 0.25 *R* and 0.6 *R* (where *R* is the radius of the propeller) for solid propellers and at a radius of 0.35 *R* and 0.6 *R* for controllable pitch propellers is not to be less than the values given by the following formula. The thickness of the highly skewed propeller blades is to conform with the provisions specified in **2** below. $t = \sqrt{\frac{K_1}{K_2}\frac{H}{ZN_0\ell}SW}$ where t : Thickness of blades (excluding the fillet of blade root) (*cm*) H : Maximum continuous output of main propulsion machinery (*kW*) Z : Number of blades N_0 : Number of maximum continuous revolutions (*rpm*) divided by 100 ℓ : Width of blade at radius in question (*cm*) K_1 : Coefficient of the radius in question given by the following formula: $K_1 = \frac{30.3}{\sqrt{1+k_1\left(\frac{P'}{D}\right)^2}}\left(k_2\frac{D}{P}+k_3\frac{P'}{D}\right)$ D : Diameter of propeller (*m*) k_1, k_2, k_3 : Values given in **Table D7.1** P' : Pitch at radius in question (*m*) P : Pitch at radius of 0.7 *R* (*m*) K_2 : Coefficient given by the following formula: $K_2 = K - \left(k_4\frac{E}{t_0}+k_5\right)\frac{D^2N_0^2}{1000}$	**1** The thickness of the propeller blades at a radius of 0.25 *R* and 0.6 *R* (where *R* is the radius of the propeller) for solid propellers and at a radius of 0.35 *R* and 0.6 *R* for controllable pitch propellers is not to be less than the values given by the following formula. The thickness of the highly skewed propeller blades is to conform with the provisions specified in **2** below. $t = \sqrt{\frac{K_1}{K_2}\frac{H}{ZN_0\ell}SW}$ where t : Thickness of blades (excluding the fillet of blade root) (*cm*) H : Maximum continuous output of main propulsion machinery (*kW*) Z : Number of blades N_0 : Number of maximum continuous revolutions (*rpm*) divided by 100 ℓ : Width of blade at radius in question (*cm*) K_1 : Coefficient of the radius in question given by the following formula: $K_1 = \frac{30.3}{\sqrt{1+k_1\left(\frac{P'}{D}\right)^2}}\left(k_2\frac{D}{P}+k_3\frac{P'}{D}\right)$ D : Diameter of propeller (*m*) k_1, k_2, k_3 : Values given in **Table D7.1** P' : Pitch at radius in question (*m*) P : Pitch at radius of 0.7 *R* (*m*) K_2 : Coefficient given by the following formula: $K_2 = K - \left(k_4\frac{E}{t_0}+k_5\right)\frac{D^2N_0^2}{1000}$	Wording correction

k_4, k_5 : Values given in **Table D7.1** E : Rake at the tip of the blade (Measuring from face side base line and taking positive value for backward rake) (*cm*) t_0 : Imaginary thickness of blade at propeller shaft centreline (t_0 may be obtained by drawing the each side line which connects the blade tip thickness with the thickness at 0.25 *R* (or 0.35 *R* for controllable pitch propeller), in the projection of the blade section along the maximum blade thickness line.) (*cm*) K : Value depending upon the type of the propeller material given in **Table D7.2** S : Coefficient concerning the increase in stress during times of bad weather. Where S>1.0 or S<0.8, the value of S is to be taken as 1.0 or 0.8 respectively. $S = 0.095\left(\frac{D_S}{d_S}\right) + 0.677$ D_S : Depth of ship for strength computation (*See* **2.1.7, Part A**) d_S : Load draught (*See* **2.1.12, Part A**) W : Coefficient concerning alternate stress, given by the following formula or to be taken as 2.80, whichever is greater. $W = 1 + 1.724\left(\frac{A_2A_3 + A_4A_1P'/D}{A_3 + A_4P'/D}\right)$ $A_1 = \frac{\Delta\omega}{\omega + C_1}$ $A_2 = \frac{\Delta\omega}{\omega + C_2}$	k_4, k_5 : Values given in **Table D7.1** E : Rake at the tip of the blade (Measuring from face side base line and taking positive value for backward rake) (*cm*) t_0 : Imaginary thickness of blade at propeller shaft centreline (t_0 may be obtained by drawing the each side line which connects the blade tip thickness with the thickness at 0.25 *R* (or 0.35 *R* for controllable pitch propeller), in the projection of the blade section along the maximum blade thickness line.) (*cm*) K : Value depending upon the type of the propeller material given in **Table D7.2** S : Coefficient concerning the increase in stress during times of bad weather. Where S>1.0 or S<0.8, the value of S is to be taken as 1.0 or 0.8 respectively. $S = 0.095\left(\frac{D_S}{d_S}\right) + 0.677$ D_S : Depth of ship for strength computation (*See* **2.1.7, Part A**) d_S : Load draught (*See* **2.1.12, Part A**) W : Coefficient concerning alternate stress, given by the following formula or to be taken as 2.80, whichever is greater. $W = 1 + 1.724\left(\frac{A_2A_3 + A_4A_1P'/D}{A_3 + A_4P'/D}\right)$ $A_1 = \frac{\cancel{\frac{\Delta\omega}{\omega + C_1}}\Delta w}{w + C_1}$ $A_2 = \cancel{\frac{\Delta\omega}{\omega + C_2}}\frac{\Delta w}{w + C_2}$	

$A_3 = \frac{(C_1+1)(C_2+\omega)}{C_3(C_2+1)(C_1+\omega)}$ $A_4 = \begin{cases}3.52(0.25R)\\ 2.41(0.35R)\\ 1.26(0.6R)\end{cases}$ $C_1 = \frac{D}{0.95P}\left\{\frac{P}{D}\left(1.3-\frac{2a_e}{Z}\right)+0.22\right\}-1$ $C_2 = \frac{D}{0.95P}\left(1.1\frac{P}{D}-\frac{1.19a_e}{Z}+0.2\right)-1$ $C_3 = 0.122\frac{P}{D}+0.0236$ a_e :Expanded area ratio of propeller ω :Nominal mean wake in the propeller disc $\Delta\omega$:Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of ω and $\Delta\omega$ are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. $\Delta\omega = 7.32\left\{1.56-0.04\left(\frac{B}{D}+4\right)\sqrt{\frac{B}{d_S}}-C_b\right\}\omega$ $\omega = 0.625\left\{0.04\left(\frac{B}{D}+4\right)\sqrt{\frac{B}{d_S}}+C_b\right\}-0.527$ B :Breadth of ship (m) C_b :Block coefficient of ship	$A_3 =$ ~~$\frac{(C_1+1)(C_2+\omega)}{C_3(C_2+1)(C_1+\omega)}$~~ $\frac{(C_1+1)(C_2+w)}{C_3(C_2+1)(C_1+w)}$ $A_4 = \begin{cases}3.52(0.25R)\\ 2.41(0.35R)\\ 1.26(0.6R)\end{cases}$ $C_1 = \frac{D}{0.95P}\left\{\frac{P}{D}\left(1.3-\frac{2a_e}{Z}\right)+0.22\right\}-1$ $C_2 = \frac{D}{0.95P}\left(1.1\frac{P}{D}-\frac{1.19a_e}{Z}+0.2\right)-1$ $C_3 = 0.122\frac{P}{D}+0.0236$ a_e :Expanded area ratio of propeller ~~ω~~w :Nominal mean wake in the propeller disc ~~$\Delta\omega$~~Δw : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of ~~ω~~w and ~~$\Delta\omega$~~Δw are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. ~~$\Delta\omega$~~$\Delta w = 7.32\left\{1.56-0.04\left(\frac{B}{D}+4\right)\sqrt{\frac{B}{d_S}}-C_b\right\}$ ~~ω~~w ~~ω~~$w = 0.625\left\{0.04\left(\frac{B}{D}+4\right)\sqrt{\frac{B}{d_S}}+C_b\right\}-0.527$ B :Breadth of ship (m) C_b :Block coefficient of ship	

Rules for the survey and construction of steel ships Part D Chapter 9 Fig. 9.4

Correction	Present	Note
Fig. D9.4 The Efficiency of Ligament at the Part of the Tube Holes drilled in a Circumferential Direction  $\cancel{\frac{d}{a}}$ $\frac{b}{a}$ $\frac{t}{r}$	Fig. D9.4 The Efficiency of Ligament at the Part of the Tube Holes drilled in a Circumferential Direction  $\frac{d}{a}$	Wording correction

Rules for the survey and construction of steel ships Part D Chapter 14 14.5.3-4

Correction	Present	Note
4 In the case of ~~exclus ive~~exclusive bilge suction pipes, branch bilge suction pipes are to comply with the requirements given in **13.5** in addition to those requirements given in **-3**. In calculating the inside diameters of branch bilge suction pipes for the draining of cargo hold bilge of ore/oil carriers, the mean widths of such cargo holds may be used in lieu of *B*. Bilge suction pipes which are also used as cargo oil pipes or which are connected to eductors are to, in addition to complying with the requirements given in **-2** and **-3,** be to the satisfaction of the Society.	**4** In the case of exclus ive bilge suction pipes, branch bilge suction pipes are to comply with the requirements given in **13.5** in addition to those requirements given in **-3**. In calculating the inside diameters of branch bilge suction pipes for the draining of cargo hold bilge of ore/oil carriers, the mean widths of such cargo holds may be used in lieu of *B*. Bilge suction pipes which are also used as cargo oil pipes or which are connected to eductors are to, in addition to complying with the requirements given in **-2** and **-3,** be to the satisfaction of the Society.	Wording correction

Rules for the survey and construction of steel ships Part H Chapter 3 3.3.2-2

Correction	Present	Note
2 Emergency sources of electrical power are to be capable, having regard for starting currents and the transitory nature of certain loads, of supplying simultaneously at least the following services for those periods specified hereinafter, if they depend upon electrical sources for operation: ((1) to (6) are omitted.) (7) For a period of 30 *minutes*, indications showing whether closing means are opened or closed and audible alarms showing that such closing means are operating as required by **2.2.3.1, Part 1, Part C**, and indicators showing whether these closing means are opened or closed as required by **2.2.3.2** and **2.~~2~~3.4.2, Part 1, Part C** if they are operated by electrical power. ((8) to (10) are omitted.)	**2** Emergency sources of electrical power are to be capable, having regard for starting currents and the transitory nature of certain loads, of supplying simultaneously at least the following services for those periods specified hereinafter, if they depend upon electrical sources for operation: ((1) to (6) are omitted.) (7) For a period of 30 *minutes*, indications showing whether closing means are opened or closed and audible alarms showing that such closing means are operating as required by **2.2.3.1, Part 1, Part C**, and indicators showing whether these closing means are opened or closed as required by **2.2.3.2** and **2.2.4.2, Part 1, Part C** if they are operated by electrical power. ((8) to (10) are omitted.)	Reference correction

Rules for the survey and construction of steel ships Part H Chapter 3 1.2.3-4

Correction	Present	Note
4 In cases where supplying to loads via inverters from the batteries in UPS, maximum permitted voltage fluctuations on the output side of the circuit may be taken as those specified in **~~Table~~Tables H2.1(a)** or **H2.1(b), 2.1.2-3, Part H** respectively, notwithstanding any voltage drops of such batteries.	**4** In cases where supplying to loads via inverters from the batteries in UPS, maximum permitted voltage fluctuations on the output side of the circuit may be taken as those specified in **Table H2.1(a)** or **H2.1(b), 2.1.2-3, Part H** respectively, notwithstanding any voltage drops of such batteries.	Wording correction

Rules for the survey and construction of steel ships Part K Chapter 2 Table K2.7

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table K2.7 Width of Subsize Test Specimens (For Steel Tubes)
<table>
<tr><th>Thickness of plate c (mm)$^{(1)}$</th><th>Width of impact test specimens W (mm)</th></tr>
<tr><td>$c<5^{(2)}$</td><td>—</td></tr>
<tr><td>$5 \leq c < 7.5$</td><td>5 ± 0.06</td></tr>
<tr><td>$7.5 \leq c < 10$</td><td>7.5 ± 0.11</td></tr>
</table>
Notes:
(1) c is to be calculated by the following formula
$$c = at - 1 - \frac{d - \sqrt{d^2 - b}}{2}$$
a and b : Constants determined according to the kind of steel pipe and the point of collection of test specimen. Refer to **Table K2.8.**
t : Nominal thickness (mm) of steel pipe
d : Outside diameter (mm) of steel pipe
(2) Refer to **note (5)** of **Table K4.~~28~~27** in cases where thickness of plate is less than 5mm.
</td>
<td>
Table K2.7 Width of Subsize Test Specimens (For Steel Tubes)
<table>
<tr><th>Thickness of plate c (mm)$^{(1)}$</th><th>Width of impact test specimens W (mm)</th></tr>
<tr><td>$c<5^{(2)}$</td><td>—</td></tr>
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</table>
Notes:
(1) c is to be calculated by the following formula
$$c = at - 1 - \frac{d - \sqrt{d^2 - b}}{2}$$
a and b : Constants determined according to the kind of steel pipe and the point of collection of test specimen. Refer to **Table K2.8.**
t : Nominal thickness (mm) of steel pipe
d : Outside diameter (mm) of steel pipe
(2) Refer to **note (5) of Table K4.28** in cases where thickness of plate is less than 5mm.
</td>
<td>Reference correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part K Chapter 4 Table K4.27

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table K4.27 Heat Treatment and Mechanical Properties
(Omitted)
Notes:
(1) L (or T) denotes that the longitudinal axis of the test specimen is arranged parallel (or normal) to the final direction of rolling.
(2) Where the nominal diameter of steel pipes is 200 mm and over, the tensile test specimen may be taken transversely.
(3) Where test specimen of non-tubular section is taken from electric resistance welded pipes, the test specimen is to be taken from the part that does not include the welded line.
(4) Where absorbed energy of more than one of a set of test specimens is under the required minimum mean absorbed
</td>
<td>
Table K4.27 Heat Treatment and Mechanical Properties
(Omitted)
Notes:
(1) L (or T) denotes that the longitudinal axis of the test specimen is arranged parallel (or normal) to the final direction of rolling.
(2) Where the nominal diameter of steel pipes is 200 mm and over, the tensile test specimen may be taken transversely.
(3) Where test specimen of non-tubular section is taken from electric resistance welded pipes, the test specimen is to be taken from the part that does not include the welded line.
(4) Where absorbed energy of more than one of a set of test specimens is under the required minimum mean absorbed energy,
</td>
<td>Wording correction</td>
</tr>
</table>

energy, or where the absorbed energy of one test specimen is under 70% of the required value, the test is considered to be failed. (5) In case where the width of test specimens required by ~~Table~~Tables **K2.5** and **K2.7** cannot be taken, impact tests may be omitted subject to satisfying the following **(a)** and **(b)**: (a) Chemical composition contains not less than 0.010% of acid soluble aluminium or not less than 0.015% total aluminium. (b) In cases where the actual impact test records of material which is manufactured on a like-for-like basis regarding manufacturing process and chemical composition are found to be satisfactory.	or where the absorbed energy of one test specimen is under 70% of the required value, the test is considered to be failed. (5) In case where the width of test specimens required by **Table K2.5** and **K2.7** cannot be taken, impact tests may be omitted subject to satisfying the following **(a)** and **(b)**: (a) Chemical composition contains not less than 0.010% of acid soluble aluminium or not less than 0.015% total aluminium. (b) In cases where the actual impact test records of material which is manufactured on a like-for-like basis regarding manufacturing process and chemical composition are found to be satisfactory.	

Rules for the survey and construction of steel ships Part K Chapter 5 5.2.7-4

Correction	Present	Note
4 The tensile and the impact test specimens are to comply with the requirements specified in ~~Table~~Tables **K2.1** and **K2.5** respectively.	**4** The tensile and the impact test specimens are to comply with the requirements specified in **Table K2.1** and **K2.5** respectively.	Wording correction

Rules for the survey and construction of steel ships Part K Chapter 8 8.2.2

Correction	Present	Note
The aluminium alloy pipes are classified as specified in ~~Tables~~Table **K8.5**.	The aluminium alloy pipes are classified as specified in **Tables K8.5**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 8 8.6.2-2

Correction	Present	Note
2 Testing Level and Acceptance Level of non-destructive testing to be applied are to be appropriate level which corresponds to Quality Level agreed by the Society in accordance with ~~Table~~**Tables** **M8.2** to **M8.7**.	**2** Testing Level and Acceptance Level of non-destructive testing to be applied are to be appropriate level which corresponds to Quality Level agreed by the Society in accordance with **Table M8.2** to **M8.7**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 8 8.6.3-1

Correction	Present	Note
1 Testing Level specified in ~~Table~~**Tables** **M8.2** to **M8.7** stipulates testing coverage and the probability of detection. Accuracy of test and the probability of detection increase from Testing Level A to Testing Level C.	**1** Testing Level specified in **Table M8.2** to **M8.7** stipulates testing coverage and the probability of detection. Accuracy of test and the probability of detection increase from Testing Level A to Testing Level C.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 8 8.6.4

Correction	Present	Note
Acceptance Level is to be in accordance with each standard specified in ~~Table~~**Tables** **M8.2** to **M8.7**, or as deemed appropriate by the Society. The aforementioned standards, in principle, refer to the most recent version published.	Acceptance Level is to be in accordance with each standard specified in **Table M8.2** to **M8.7,** or as deemed appropriate by the Society. The aforementioned standards, in principle, refer to the most recent version published.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 8 8.6.9-1

Correction	Present	Note
1 The Acceptance Level, Testing Level and required Quality Levels for ultrasonic testing are to be in accordance with **Tables M8.6** and **M8.7**.	**1** The Acceptance Level, Testing Level and required Quality Levels for ultrasonic testing are to be in accordance with **Table M8.6** and **M8.7**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.4.1-2

Correction	Present	Note
2 The supplier is to be responsible for the preceding **-1**.	**2** The supplier is to be responsible for the preceding **1**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.4.2-3

Correction	Present	Note
3 In relation to the preceding **-2**, suppliers are to employ, on a full-time basis, at least one supervisor for all *ANDT* methods which are carried out by the supplier, except in cases where it is recognised that it is difficult for the supplier to directly employ a Level 3 certified supervisor for all the stated *ANDT* methods.	**3** In relation to the preceding **2**, suppliers are to employ, on a full-time basis, at least one supervisor for all *ANDT* methods which are carried out by the supplier, except in cases where it is recognised that it is difficult for the supplier to directly employ a Level 3 certified supervisor for all the stated *ANDT* methods.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.5.3-2

Correction	Present	Note
2 The data with respect to the repeatability and reliability obtained by the verification tests specified in the preceding **-1(3)** is to be analyzed by comparing test reports for qualification blocks with those for onsite testing. Qualification blocks are to be manufactured in accordance with a recognized standard deemed appropriate by the Society. Onsite verification test plans are to be confirmed by the Society.	**2** The data with respect to the repeatability and reliability obtained by the verification tests specified in the preceding **1(3)** is to be analyzed by comparing test reports for qualification blocks with those for onsite testing. Qualification blocks are to be manufactured in accordance with a recognized standard deemed appropriate by the Society. Onsite verification test plans are to be confirmed by the Society.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.8.2-8

Correction	Present	Note
8 All changes of essential or nonessential variables are to be written in the most recent approved *PAUT* specifications specified in the preceding **-6** and **-7**.	**8** All changes of essential or nonessential variables are to be written in the most recent approved *PAUT* specifications specified in the preceding **6** and **7**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.8.3-5

Correction	Present	Note
5 All changes of essential or nonessential variables are to be written in the most recent approved *TOFD* specifications specified in the preceding **-3** and **-4**.	**5** All changes of essential or nonessential variables are to be written in the most recent approved *TOFD* specifications specified in the preceding **3** and **4**.	Wording correction

Rules for the survey and construction of steel ships Part M Chapter 9 9.8.4-4

Correction	Present	Note
4 All content changes are to be written in the most recent approved *RT-D* specifications specified in the preceding **-3**.	**4** All content changes are to be written in the most recent approved *RT-D* specifications specified in the preceding **3**.	Wording correction

Rules for the survey and construction of steel ships Part N Chapter 4 4.27.3

Correction	Present	Note
The procedure and relevant design parameters of the limit state design are to comply with the Standards for the Use of limit state methodologies in the design of cargo containment systems of novel configuration (*LSD* Standard), as set out in **Annex 7 of Guidance**.	The procedure and relevant design parameters of the limit state design are to comply with the Standards for the Use of limit state methodologies in the design of cargo containment systems of novel configuration (*LSD* Standard), as set out in **Annex 7**.	Wording correction

Rules for the survey and construction of steel ships Part N Chapter 6 6.2.1

Correction	Present	Note
This chapter gives the requirements for metallic and non-metallic materials used in the construction of the cargo system. This includes requirements for joining processes, production process, personnel qualification, *NDT* and inspection and testing including production testing. The requirements for rolled materials, forgings and castings are given in **6.4** and **Table N6.1** to **Table N6.5**. The requirements for weldments are given in **6.5**, and the guidance for non-metallic materials is given in **Annex 6 of Guidance**. A quality assurance/quality control programme is to be implemented to ensure that the requirements of **6.2** are complied with.	This chapter gives the requirements for metallic and non-metallic materials used in the construction of the cargo system. This includes requirements for joining processes, production process, personnel qualification, *NDT* and inspection and testing including production testing. The requirements for rolled materials, forgings and castings are given in **6.4** and **Table N6.1** to **Table N6.5**. The requirements for weldments are given in **6.5**, and the guidance for non-metallic materials is given in **Annex 6**. A quality assurance/quality control programme is to be implemented to ensure that the requirements of **6.2** are complied with.	Wording correction

Rules for the survey and construction of steel ships Part N Chapter 6 Table N6.5

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table N6.5 Plates and Sections for Hull Structures Required by 4.19.1-2 and 4.19.1-4
<table>
<tr><td rowspan="2">Minimum design temperature of hull structure (℃)</td><td colspan="7">Maximum thickness (<i>mm</i>) for steel grades</td></tr>
<tr><td><i>A</i></td><td><i>B</i></td><td><i>D</i></td><td><i>E</i></td><td><i>AH</i></td><td><i>DH</i></td><td><i>EH</i></td></tr>
<tr><td>0 and above(1)-5 and above(2)</td><td colspan="7">In accordance with Part C of the Rules</td></tr>
<tr><td>down to -5</td><td>15</td><td>25</td><td>30</td><td>50</td><td>25</td><td>45</td><td>50</td></tr>
<tr><td>down to -10</td><td>×</td><td>20</td><td>25</td><td>50</td><td>20</td><td>40</td><td>50</td></tr>
<tr><td>down to -20</td><td>×</td><td>×</td><td>20</td><td>50</td><td>×</td><td>30</td><td>50</td></tr>
<tr><td>down to -30</td><td>×</td><td>×</td><td>×</td><td>40</td><td>×</td><td>20</td><td>40</td></tr>
<tr><td>below -30</td><td colspan="7">In accordance with Table N6.2 except that the thickness limitation given in Table N6.2 and in footnote (2) of that table does not apply.</td></tr>
</table>
Notes:
“×” means steel grade not to be used.
(1) For the purpose of 4.~~9~~19.1-3
(2) For the purpose of 4.~~9~~19.1-2
</td>
<td>
Table N6.5 Plates and Sections for Hull Structures Required by 4.19.1-2 and 4.19.1-4
<table>
<tr><td rowspan="2">Minimum design temperature of hull structure (℃)</td><td colspan="7">Maximum thickness (<i>mm</i>) for steel grades</td></tr>
<tr><td><i>A</i></td><td><i>B</i></td><td><i>D</i></td><td><i>E</i></td><td><i>AH</i></td><td><i>DH</i></td><td><i>EH</i></td></tr>
<tr><td>0 and above(1)-5 and above(2)</td><td colspan="7">In accordance with Part C of the Rules</td></tr>
<tr><td>down to -5</td><td>15</td><td>25</td><td>30</td><td>50</td><td>25</td><td>45</td><td>50</td></tr>
<tr><td>down to -10</td><td>×</td><td>20</td><td>25</td><td>50</td><td>20</td><td>40</td><td>50</td></tr>
<tr><td>down to -20</td><td>×</td><td>×</td><td>20</td><td>50</td><td>×</td><td>30</td><td>50</td></tr>
<tr><td>down to -30</td><td>×</td><td>×</td><td>×</td><td>40</td><td>×</td><td>20</td><td>40</td></tr>
<tr><td>below -30</td><td colspan="7">In accordance with Table N6.2 except that the thickness limitation given in Table N6.2 and in footnote (2) of that table does not apply.</td></tr>
</table>
Notes:
“×” means steel grade not to be used.
(1) For the purpose of 4.9.1-3
(2) For the purpose of 4.9.1-2
</td>
<td>Reference correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part N Chapter 6 6.7.1

Correction	Present	Note
The information in the attached **Annex 6 of Guidance** is given for guidance in the selection and use of these materials, based on the experience to date.	The information in the attached **Annex 6** is given for guidance in the selection and use of these materials, based on the experience to date.	Wording correction

Rules for the survey and construction of steel ships Part N Chapter 18 18.3.1-1

Correction	Present	Note
1 General (1) A cargo emergency shutdown system is to be fitted to stop cargo flow in the event of an emergency, either internally within the ship, or during cargo transfer to ship or shore. The design of the *ESD* system is to avoid the potential generation of surge pressures within cargo transfer pipe work (see **-2(1)(d)**). (2) Auxiliary systems for conditioning the cargo that use toxic or flammable liquids or vapours are to be treated as cargo systems for the purposes of *ESD*. Indirect refrigeration systems using an inert medium, such as nitrogen, need not be included in the *ESD* function. (3) The *ESD* system is to be activated by the manual and automatic initiations listed in **Table ~~18~~N18.1**. Any additional initiations are only to be included in the *ESD* system if it can be shown that their inclusion does not reduce the integrity and reliability of the system overall. (4) Ship's *ESD* systems are to incorporate a ship-shore link in accordance with recognized standards. (5) A functional flow chart of the *ESD* system and related systems is to be provided in the cargo control station and on the navigation bridge.	**1** General (1) A cargo emergency shutdown system is to be fitted to stop cargo flow in the event of an emergency, either internally within the ship, or during cargo transfer to ship or shore. The design of the *ESD* system is to avoid the potential generation of surge pressures within cargo transfer pipe work (see **-2(1)(d)**). (2) Auxiliary systems for conditioning the cargo that use toxic or flammable liquids or vapours are to be treated as cargo systems for the purposes of *ESD*. Indirect refrigeration systems using an inert medium, such as nitrogen, need not be included in the *ESD* function. (3) The *ESD* system is to be activated by the manual and automatic initiations listed in **Table 18.1**. Any additional initiations are only to be included in the *ESD* system if it can be shown that their inclusion does not reduce the integrity and reliability of the system overall. (4) Ship's *ESD* systems are to incorporate a ship-shore link in accordance with recognized standards. (5) A functional flow chart of the *ESD* system and related systems is to be provided in the cargo control station and on the navigation bridge.	Wording correction

Rules for the survey and construction of steel ships Part N Chapter 18 18.3.1-3

Correction	Present	Note
3 *ESD* system controls (1) As a minimum, the *ESD* system is to be capable of manual operation by a single control on the bridge and either in the control position required by **13.1.2** or the cargo control room, if installed, and no less than two locations in the cargo area. (2) The *ESD* system is to be automatically activated on detection of a fire on the weather decks of the cargo area and/or cargo machinery spaces. As a minimum, the method of detection used on the weather decks is to cover the liquid and vapour domes of the cargo tanks, the cargo manifolds and areas where liquid piping is dismantled regularly. Detection may be by means of fusible elements designed to melt at temperatures between 98°C and 104°C, or by area fire detection methods. (3) Cargo machinery that is running is to be stopped by activation of the *ESD* system in accordance with the cause and effect matrix in **Table ~~18~~N18.1**. (4) The *ESD* control system is to be configured so as to enable the high-level testing required in **13.3.5** to be carried out in a safe and controlled manner. For the purpose of the testing, cargo pumps may be operated while the overflow control system is overridden. Procedures for level alarm testing and re-setting of the *ESD* system after completion of the high-level alarm testing is to be included in the operation manual required by **18.2.1**.	**3** *ESD* system controls (1) As a minimum, the *ESD* system is to be capable of manual operation by a single control on the bridge and either in the control position required by **13.1.2** or the cargo control room, if installed, and no less than two locations in the cargo area. (2) The *ESD* system is to be automatically activated on detection of a fire on the weather decks of the cargo area and/or cargo machinery spaces. As a minimum, the method of detection used on the weather decks is to cover the liquid and vapour domes of the cargo tanks, the cargo manifolds and areas where liquid piping is dismantled regularly. Detection may be by means of fusible elements designed to melt at temperatures between 98°C and 104°C, or by area fire detection methods. (3) Cargo machinery that is running is to be stopped by activation of the *ESD* system in accordance with the cause and effect matrix in **Table 18.1**. (4) The *ESD* control system is to be configured so as to enable the high-level testing required in **13.3.5** to be carried out in a safe and controlled manner. For the purpose of the testing, cargo pumps may be operated while the overflow control system is overridden. Procedures for level alarm testing and re-setting of the *ESD* system after completion of the high-level alarm testing is to be included in the operation manual required by **18.2.1**.	Wording correction

Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-2 Chapter 2 2.3.2-2

Correction	Present	Note
2 Unless designed with the strength to withstand the worst case overpressure due to ignited gas leaks, scavenge spaces and exhaust system are to be fitted with suitable pressure relief systems in accordance with **16.7.1-4, Part ~~D~~N of the Rules**.	**2** Unless designed with the strength to withstand the worst case overpressure due to ignited gas leaks, scavenge spaces and exhaust system are to be fitted with suitable pressure relief systems in accordance with **16.7.1-4, Part D of the Rules**.	Reference correction

Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-2 Chapter 4 4.2

Correction	Present	Note
High pressure gas-fuelled engines of ships to which the requirements in **1.1.1 of the Rules for Automatic and Remote Control Systems** apply are to comply with the requirements in **3.2**~~and **3.3** or **4.2** of the same **Rules**~~ and **3.3** or **4.2 of the Rules for Automatic and Remote Control Systems**, in addition to the following requirements **(1)** and **(2)**: (1) High pressure gas-fuelled engines are to be provided with safety system which automatically cut off gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stops the engines when abnormalities **(a)** to **(d)** given below occur. However, automatic cut off of gas fuel supply with the automatic double block and bleed valves specified in **16.4.5, Part N of the Rules** may be accepted. (a) When abnormalities specified in **2.3.1-1** or **-2** are detected. (b) When gas fuel leaks are detected by gas detecting devices specified in **3.2.3-2(2)**. (c) When high pressure gas compressors or pumps for supplying gas fuel stopped for reasons specified in **4.3** (excluding however, the case in which arrangement is made for automatic starting	High pressure gas-fuelled engines of ships to which the requirements in **1.1.1 of the Rules for Automatic and Remote Control Systems** apply are to comply with the requirements in **3.2** and **3.3** or **4.2** of the same **Rules**, in addition to the following requirements **(1)** and **(2)**: (1) High pressure gas-fuelled engines are to be provided with safety system which automatically cut off gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stops the engines when abnormalities **(a)** to **(d)** given below occur. However, automatic cut off of gas fuel supply with the automatic double block and bleed valves specified in **16.4.5, Part N of the Rules** may be accepted. (a) When abnormalities specified in **2.3.1-1** or **-2** are detected. (b) When gas fuel leaks are detected by gas detecting devices specified in **3.2.3-2(2)**. (c) When high pressure gas compressors or pumps for supplying gas fuel stopped for reasons	Wording correction

of a stand-by compressor when the working compressor fails). (d) Other cases as deemed necessary by the Society. (2) High pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following **(a)** through **(g)**: (a) Abnormal gas fuel temperature (b) Abnormal gas fuel supply pressure (c) Abnormalities in high pressure gas compressors for gas fuel supply specified in **4.3(2)**. (d) Activation of alarms specified in **3.2.3-2(1)(a)** or **(2)**. (e) Low inert gas supply pressures for purging gas fuel pipe lines (f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control (g) Others as deemed necessary by the Society.	specified in **4.3** (excluding however, the case in which arrangement is made for automatic starting of a stand-by compressor when the working compressor fails). (d) Other cases as deemed necessary by the Society. (2) High pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following **(a)** through **(g)**: (a) Abnormal gas fuel temperature (b) Abnormal gas fuel supply pressure (c) Abnormalities in high pressure gas compressors for gas fuel supply specified in **4.3(2)**. (d) Activation of alarms specified in **3.2.3-2(1)(a)** or **(2)**. (e) Low inert gas supply pressures for purging gas fuel pipe lines (f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control (g) Others as deemed necessary by the Society.	

Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-3 Chapter 4 4.2

Correction	Present	Note
Low pressure gas-fuelled engines of ships to which the requirement **1.1.1, of Rules for Automatic and Remote Control Systems** apply are to comply with the requirements of **3.2**~~and **3.3** or **4.2** of the same **Rules**~~ and **3.3** or **4.2 of Rules for Automatic and Remote Control Systems**, in addition to the following requirements **(1)** and **(2)**. (1) Low pressure gas-fuelled engines are to be provided with safety systems which automatically cut off the gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stop the engines when abnormalities **(a)** to **(c)** given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in **16.4.5, Part N of the Rules** may be accepted. (a) When operating on gas fuel, abnormalities are detected in the following: i) gas fuel valve function ii) pilot oil fuel injection valve function iii) suction valve and exhaust valve function iv) exhaust gas temperatures at cylinder outlets v) pressure in cylinder vi) blow-by through suction valves or exhaust valves (b) When gas leaks to double wall pipes or void spaces of ducts specified in **3.2.2-2** are detected. (c) Others as deemed necessary by the Society. (2) Low pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following **(a)**	Low pressure gas-fuelled engines of ships to which the requirement **1.1.1, of Rules for Automatic and Remote Control Systems** apply are to comply with the requirements of **3.2** and **3.3** or **4.2** of the same **Rules**, in addition to the following requirements **(1)** and **(2)**. (1) Low pressure gas-fuelled engines are to be provided with safety systems which automatically cut off the gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stop the engines when abnormalities **(a)** to **(c)** given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in **16.4.5, Part N of the Rules** may be accepted. (a) When operating on gas fuel, abnormalities are detected in the following: i) gas fuel valve function ii) pilot oil fuel injection valve function iii) suction valve and exhaust valve function iv) exhaust gas temperatures at cylinder outlets v) pressure in cylinder vi) blow-by through suction valves or exhaust valves (b) When gas leaks to double wall pipes or void spaces of ducts specified in **3.2.2-2** are detected. (c) Others as deemed necessary by the Society. (2) Low pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or	Wording correction

through **(f)**: (a) Abnormal gas fuel temperature. (b) Abnormal gas fuel supply pressure. (c) Activation of an alarm issued before the pressure of the space between concentric pipes specified in **3.2.2-2** drops to below the atmospheric pressure. (d) Low inert gas supply pressure for purging gas fuel pipe lines. (e) Low pressures of hydraulic and pneumatic sources or loss of electric power supply for gas fuel combustion control. (f) Others as deemed necessary by the Society.	transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following **(a)** through **(f)**: (a) Abnormal gas fuel temperature. (b) Abnormal gas fuel supply pressure. (c) Activation of an alarm issued before the pressure of the space between concentric pipes specified in **3.2.2-2** drops to below the atmospheric pressure. (d) Low inert gas supply pressure for purging gas fuel pipe lines. (e) Low pressures of hydraulic and pneumatic sources or loss of electric power supply for gas fuel combustion control. (f) Others as deemed necessary by the Society.	

Rules for the survey and construction of steel ships Part I Chapter 8 8.5.9-2

Correction	Present	Note
2 Time domain calculation Time domain calculations are to be calculated for the maximum continuous revolutions condition, maximum continuous revolutions bollard conditions and for blade order resonant rotational speeds so that the resonant vibration responses can be obtained. The load sequence given in the following, for a case where a propeller is milling an ice block, are to be used for the strength evaluation of the propulsion line. (The given load sequence is not intended for propulsion system stalling analyses.) (1) Diesel engine plants without an elastic coupling are to be calculated at the least favourable phase angle for ice versus engine excitation, when calculated in the time domain. (2) The engine firing pulses are to be included in the calculations and their standard steady state harmonics can be used. (3) If there is a blade order resonance just above the maximum continuous revolutions speed, calculations are to cover rotational speeds up to 105% of the maximum continuous revolutions speed. (4) The propeller ice excitation torque for shaft line transient dynamic analysis in the time domain is to comply with the following requirements: (a) The excitation torque is defined as a sequence of blade impacts which are of half sine shape and occur at the blade. The excitation frequency is to follow the propeller rotational speed during the ice interaction sequence. The total ice torque is to be obtained by summing the torques of single ice blade ice impacts taking into account the phase shift. The single ice blade impact is given by the	**2** Time domain calculation Time domain calculations are to be calculated for the maximum continuous revolutions condition, maximum continuous revolutions bollard conditions and for blade order resonant rotational speeds so that the resonant vibration responses can be obtained. The load sequence given in the following, for a case where a propeller is milling an ice block, are to be used for the strength evaluation of the propulsion line. (The given load sequence is not intended for propulsion system stalling analyses.) (1) Diesel engine plants without an elastic coupling are to be calculated at the least favourable phase angle for ice versus engine excitation, when calculated in the time domain. (2) The engine firing pulses are to be included in the calculations and their standard steady state harmonics can be used. (3) If there is a blade order resonance just above the maximum continuous revolutions speed, calculations are to cover rotational speeds up to 105% of the maximum continuous revolutions speed. (4) The propeller ice excitation torque for shaft line transient dynamic analysis in the time domain is to comply with the following requirements: (a) The excitation torque is defined as a sequence of blade impacts which are of half sine shape and occur at the blade. The excitation frequency is to follow the propeller rotational speed during the ice interaction sequence. The total ice torque is to be obtained by summing the torques of single ice blade ice impacts taking into account the phase shift. The single ice blade impact is given by the	Wording correction

following formulae: i) when $0 \leq \varphi - 360x \leq \alpha_{\mathrm{i}}$ (*deg*) $Q(\varphi) = C_q Q_{max} \sin(\varphi(180/\alpha_i))$ ii) when $\alpha_{\mathrm{i}} \leq \varphi - 360x \leq 360$ (*deg*) $Q(\varphi) = 0$ where φ: Rotation angle from when the first impact occurs x : Integer revolutions from the time of first impact Q_{max}: Maximum torque on the propeller as specified in **8.5.8**. Q_{max} may be taken as a constant value in the complete speed range. When considerations at specific shaft speeds are performed, a relevant Q_{max} may be calculated using the relevant speed according to **8.5.8** and **8.5.9**. C_q: As specified in **Table I8.20** a_i: Duration of propeller blade/ice interaction expressed in rotation angle as specified in **Table I8.20** (See **Fig. I8.7**) (b) The number of propeller revolutions and the number of impacts during the milling sequence are to be given by the following formulae. For bow propellers, the number of propeller revolutions and the number of impacts during the milling sequence are subject to special consideration. i) The number of propeller revolutions: $N_Q = 2H_{ice}$ ii) The number of impacts:	following formulae: i) when $0 \leq \varphi - 360x \leq \alpha_{\mathrm{i}}$ (*deg*) $Q(\varphi) = C_q Q_{max} \sin(\varphi(180/\alpha_i))$ ii) when $\alpha_{\mathrm{i}} \leq \varphi - 360x \leq 360$ (*deg*) $Q(\varphi) = 0$ where φ: Rotation angle from when the first impact occurs x : Integer revolutions from the time of first impact Q_{max}: Maximum torque on the propeller as specified in **8.5.8**. Q_{max} may be taken as a constant value in the complete speed range. When considerations at specific shaft speeds are performed, a relevant Q_{max} may be calculated using the relevant speed according to **8.5.8** and **8.5.9**. C_q: As specified in **Table I8.20** a_i: Duration of propeller blade/ice interaction expressed in rotation angle as specified in **Table I8.20** (See **Fig. I8.7**) (b) The number of propeller revolutions and the number of impacts during the milling sequence are to be given by the following formulae. For bow propellers, the number of propeller revolutions and the number of impacts during the milling sequence are subject to special consideration. i) The number of propeller revolutions: $N_Q = 2H_{ice}$ ii) The number of impacts:	

ZN_Q Where H_{ice} : As specified in **Table I8.15** Z : Number of propeller blades An illustration of all excitation cases for different numbers of blades is given in **Fig. I8.8** and **Fig. I8.9**. (c) A dynamic simulation is to be performed for all excitation cases at the operational rotational speed range. For a fixed pitch propeller propulsion plant, a dynamic simulation is also to cover the bollard pull condition with a corresponding rotational speed assuming the maximum possible output of the engine. (d) For the consideration of loads, the maximum occurring torque during the speed drop process is to be used. (e) For the time domain calculation, the simulated response torque typically includes the engine mean torque and the propeller mean torque. If this is not the case, the response torques are to be obtained using the following formula: $Q_{peak} = Q_{emax} + Q_{rtd}$ Where Q_{rtd} : Maximum simulated torque obtained from the time domain analysis	ZN_Q Where H_{ice} : As specified in **Table I8.15** Z : Number of propeller blades An illustration of all excitation cases for different numbers of blades is given in **Fig. I8.8** and **I8.9**. (c) A dynamic simulation is to be performed for all excitation cases at the operational rotational speed range. For a fixed pitch propeller propulsion plant, a dynamic simulation is also to cover the bollard pull condition with a corresponding rotational speed assuming the maximum possible output of the engine. (d) For the consideration of loads, the maximum occurring torque during the speed drop process is to be used. (e) For the time domain calculation, the simulated response torque typically includes the engine mean torque and the propeller mean torque. If this is not the case, the response torques are to be obtained using the following formula: $Q_{peak} = Q_{emax} + Q_{rtd}$ Where Q_{rtd} : Maximum simulated torque obtained from the time domain analysis	

Rules for the survey and construction of steel ships Part I Chapter 8 Table I8.20

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table I8.20 Values of C_q and a_i
<table>
<tr><th rowspan="2">Torque excitation</th><th rowspan="2">Propeller-ice interaction</th><th rowspan="2">C_q</th><th colspan="4">a_i (deg)</th></tr>
<tr><th>Z=3</th><th>Z=4</th><th>Z=5</th><th>Z=6</th></tr>
<tr><td>Case 1</td><td>Single ice block</td><td>0.75</td><td>90</td><td>90</td><td>72</td><td>60</td></tr>
<tr><td>Case 2</td><td>Single ice block</td><td>1.0</td><td>135</td><td>135</td><td>135</td><td>135</td></tr>
<tr><td>Case 3</td><td>Two ice blocks (phase shift 360/(2・Z) deg.)</td><td>0.5</td><td>45</td><td>45</td><td>36</td><td>30</td></tr>
<tr><td>Case 4</td><td>Single ice block</td><td>0.5</td><td>45</td><td>45</td><td>36</td><td>30</td></tr>
</table>
Note:
Total ice torque is obtained by summing the torque of single blades, while taking account of the phase shift 360deg./Z (See **Fig. I8.8** and **Fig. I8.9**). At the beginning and end of the milling sequence (within the calculated duration), linear ramp functions are to be used to increase C_q to its maximum value within one propeller revolution and vice versa to decrease it to zero (see the examples of different Z numbers in **Fig. I8.8** and **Fig. I8.9**).
</td>
<td>
Table I8.20 Values of C_q and a_i
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<tr><th rowspan="2">Torque excitation</th><th rowspan="2">Propeller-ice interaction</th><th rowspan="2">C_q</th><th colspan="4">a_i (deg)</th></tr>
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</table>
Note:
Total ice torque is obtained by summing the torque of single blades, while taking account of the phase shift 360deg./Z (See **Fig. I8.8** and **I8.9**). At the beginning and end of the milling sequence (within the calculated duration), linear ramp functions are to be used to increase C_q to its maximum value within one propeller revolution and vice versa to decrease it to zero (see the examples of different Z numbers in **Fig. I8.8** and **I8.9**).
</td>
<td>Wording correction</td>
</tr>
</table>

Rules for the survey and construction of steel ships Part I Chapter 8 8.5.9-4

Correction	Present	Note
4 For time domain calculation specified in **-2** and frequency domain calculation specified in **-3**, further the requirements given in the following **(1)** ~~to **(3**~~and **(2)** are also to be complied with. (1) The aim of time domain torsional vibration simulations is to estimate the extreme torsional load for the ship's lifespan. The simulation model can be taken from the normal lumped mass elastic torsional vibration model, including damping. For a time domain analysis, the model should include the ice excitation at the propeller, other relevant excitations and the mean torques provided by the prime mover and hydrodynamic mean torque in the propeller. The calculations should cover variation of phase between the ice excitation and prime mover excitation. This is extremely relevant to propulsion lines with directly driven combustion engines. Time domain calculations are to be calculated for the maximum continuous revolutions condition, maximum continuous revolutions bollard conditions and for resonant speed, so that the resonant vibration responses can be obtained. (2) For frequency domain calculations, the load should be estimated as a Fourier component analysis of the continuous sequence of half sine load sequences. First and second order blade components should be used for excitation.	**4** For time domain calculation specified in **-2** and frequency domain calculation specified in **-3**, further the requirements given in the following **(1)** to **(3)** are also to be complied with. (1) The aim of time domain torsional vibration simulations is to estimate the extreme torsional load for the ship's lifespan. The simulation model can be taken from the normal lumped mass elastic torsional vibration model, including damping. For a time domain analysis, the model should include the ice excitation at the propeller, other relevant excitations and the mean torques provided by the prime mover and hydrodynamic mean torque in the propeller. The calculations should cover variation of phase between the ice excitation and prime mover excitation. This is extremely relevant to propulsion lines with directly driven combustion engines. Time domain calculations are to be calculated for the maximum continuous revolutions condition, maximum continuous revolutions bollard conditions and for resonant speed, so that the resonant vibration responses can be obtained. (2) For frequency domain calculations, the load should be estimated as a Fourier component analysis of the continuous sequence of half sine load sequences. First and second order blade components should be used for excitation.	Reference correction

Rules for the survey and construction of steel ships Part I Annex 1 Chapter 1 1.1.1-1

Correction	Present	Note
1 This Annex are to be applied to materials, constructions, equipment and machineries of polar class ships in accordance with **1.1.1-4**~~,~~ and **3.3, Part I of the Rules** and **I7.3.3, Part I of the Guidance**.	**1** This Annex are to be applied to materials, constructions, equipment and machineries of polar class ships in accordance with **1.1.1-4**, **3.3**, **Part I of the Rules** and **I7.3.3**, **Part I of the Guidance**.	Wording correction

Rules for the survey and construction of steel ships Part P Chapter 2 2.2.1-3

Correction	Present	Note
3 Application of steels for structural members for hull are given in **Fig. P6.1** to **Fig. P6.~~6~~4**, where the design service temperature of materials is lower than -50℃ and plate thickness is exceeding to 70*mm*, however, applied steels are satisfactory of the Society.	**3** Application of steels for structural members for hull are given in **Fig. P6.1** to **Fig. P6.6**, where the design service temperature of materials is lower than -50℃ and plate thickness is exceeding to 70*mm*, however, applied steels are satisfactory of the Society.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 5 5.2.1-3

Correction	Present	Note
3 With respect to the provisions of **-1** above, **14.7.1**~~,~~ and **14.12.4.3, Part 1, Part C** and **21.6.8, Part CS** need not be applied to non self-propelled self-elevating units.	**3** With respect to the provisions of **-1** above, **14.7.1, 14.12.4.3, Part 1, Part C** and **21.6.8, Part CS** need not be applied to non self-propelled self-elevating units.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 10 10.7.4-6

Correction	Present	Note
6 The thruster system for Class 1 DPS need not comply with the requirements specified in **-2** after failure of one of the constituent power systems or the thrusters connected to that system.	**6** The thruster system for Class 1 DPS need not comply with the requirements specified in **2** after failure of one of the constituent power systems or the thrusters connected to that system.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 11 11.1.2-2

Correction	Present	Note
2 For machinery installations used solely for the operation which is the purpose of the unit, relevant requirements in **Part D** listed in the following **(1)** to **(25)** as well as the requirements in **11.1.3** and **11.1.4** are to be applied. (1) **1.1.2, Part D** General - General - Equivalency (2) **1.1.3, Part D** General - General - Machinery Installations with Novel Design Features (3) **1.1.4, Part D** General - General - Modification of Requirements (4) **1.1.6, Part D** General - General - Terminology (5) **1.2, Part D** General - Materials (6) **1.3.4, Part D** General - General Requirements for Machinery Installations - Fire Protections (7) **1.3.5, Part D** General - General Requirements for Machinery Installations - Ventilating Systems for Machinery Spaces (8) **1.3.6, Part D** General - General Requirements for Machinery Installations - Protection against Noise (9) **2.2.2-4, Part D** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (10) **2.2.2-5, Part D** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (11) **2.2.2-6, Part D** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (12) **2.4, Part D** Reciprocating Internal Combustion Engines - Safety Devices (13) **2.5.4, Part D** Reciprocating Internal Combustion Engines - Associated Installations - Fuel Oil Arrangements	**2** For machinery installations used solely for the operation which is the purpose of the unit, relevant requirements in **Part D** listed in the following **(1)** to **(25)** as well as the requirements in **11.1.3** and **11.1.4** are to be applied. (1) **1.1.2, Part D** General - General - Equivalency (2) **1.1.3, Part D** General - General - Machinery Installations with Novel Design Features (3) **1.1.4, Part D** General - General - Modification of Requirements (4) **1.1.6, Part D** General - General - Terminology (5) **1.2, Part D** General - Materials (6) **1.3.4, Part D** General - General Requirements for Machinery Installations - Fire Protections (7) **1.3.5, Part D** General - General Requirements for Machinery Installations - Ventilating Systems for Machinery Spaces (8) **1.3.6, Part D** General - General Requirements for Machinery Installations - Protection against Noise (9) **2.2.2-4, Part D** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (10) **2.2.2-5, Part D** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (11) **2.2.2-6** Reciprocating Internal Combustion Engines - Materials, Construction and Strength - Construction, Installation and General (12) **2.4, Part D** Reciprocating Internal Combustion Engines - Safety Devices (13) **2.5.4, Part D** Reciprocating Internal Combustion Engines - Associated Installations - Fuel Oil Arrangements	Reference correction

(14) **3.3, Part D** Steam Turbines - Safety Devices (15) **4.3, Part D** Gas Turbines - Safety Devices (16) **5.2.5, Part D** Power Transmission Systems - Materials and Construction - Lubricating Oil arrangements (17) **Chapter 9, Part D** Boilers, etc. and Incinerators (18) **Chapter 10, Part D** Pressure Vessels (19) **Chapter 11, Part D** Welding for Machinery Installations (20) **13.9.1, Part D** Piping Systems - Fuel Oil Systems - General (21) **13.9.2, Part D** Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes (22) **13.9.4, Part D** Piping Systems - Fuel Oil Systems - Drip Trays and Drainage System (23) **13.9.5, Part D** Piping Systems - Fuel Oil Systems - Fuel Oil Heaters (24) **13.10.1, Part D** Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems - General (25) **13.11, Part D** Piping Systems - Thermal Oil Systems	(14) **3.3, Part D** Steam Turbines - Safety Devices (15) **4.3, Part D** Gas Turbines - Safety Devices (16) **5.2.5, Part D** Power Transmission Systems - Materials and Construction - Lubricating Oil arrangements (17) **Chapter 9, Part D** Boilers, etc. and Incinerators (18) **Chapter 10, Part D** Pressure Vessels (19) **Chapter 11, Part D** Welding for Machinery Installations (20) **13.9.1, Part D** Piping Systems - Fuel Oil Systems - General (21) **13.9.2, Part D** Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes (22) **13.9.4, Part D** Piping Systems - Fuel Oil Systems - Drip Trays and Drainage System (23) **13.9.5, Part D** Piping Systems - Fuel Oil Systems - Fuel Oil Heaters (24) **13.10.1, Part D** Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems - General (25) **13.11, Part D** Piping Systems - Thermal Oil Systems	

Rules for the survey and construction of steel ships Part P Chapter 11 11.1.6-9

Correction	Present	Note
9 Bilge pipes passing through deep tanks are to be led through an oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thicknesses complying with the requirements in **Table D12.6(1)** to **Table D12.6(2~~)~~), Part D of the Rules** and all joints of them are to be welded.	**9** Bilge pipes passing through deep tanks are to be led through an oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thicknesses complying with the requirements in **Table D12.6(1)** to **Table D12.6(2)** and all joints of them are to be welded.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 11 11.1.6-10

Correction	Present	Note
10 Bilge pipes passing through double bottom tanks are to be led through oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thicknesses complying with the requirements in **Table D12.6(1)** to **Table D12.6(2~~).~~), Part D of the Rules**.	**10** Bilge pipes passing through double bottom tanks are to be led through oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thicknesses complying with the requirements in **Table D12.6(1)** to **Table D12.6(2)**.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 11 11.1.8-3

Correction	Present	Note
3 Ballast pipes passing through deep tanks other than ballast tanks are to be led through an oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thickness complying with the requirements in **Table D12.6(1)** to **Table D12.6(2~~)~~), Part D of the Rules** and all joints of them are to be welded.	**3** Ballast pipes passing through deep tanks other than ballast tanks are to be led through an oiltight or watertight pipe tunnel or, alternatively, are to be of sufficient thickness complying with the requirements in **Table D12.6(1)** to **Table D12.6(2)** and all joints of them are to be welded.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 11 11.1.15-1

Correction	Present	Note
1 Machinery installations of the unit which has the main propulsion machinery are to comply with the requirements in this **11.1.15** as well as the requirements in **11.1.2** to **11.1.14** and the relevant requirements in **Part D** listed in the following **(1)** to **(8)**. (1) **1.3.2, Part D** General - General Requirements for Machinery Installations - Astern Power (2) **1.3.7, Part D** General - General Requirements for Machinery Installations - Communication between navigation bridge and control stations for main propulsion machinery (3) **1.3.8, Part D** General - General Requirements for Machinery Installations - Engineers’ Alarm (4) **Chapter 7, Part D** Propellers (5) **13.9, Part D** Piping Systems - Fuel Oil Systems (except **13.9.1**, **13.9.2**, **13.9.4** and **13.9.5**~~)~~) (6) **13.10, Part D** Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems (except **13.10.1**~~)~~) (7) **13.12, Part D** Piping Systems - Cooling Systems (8) **Chapter 15, Part D** Steering Gears	**1** Machinery installations of the unit which has the main propulsion machinery are to comply with the requirements in this **11.1.15** as well as the requirements in **11.1.2** to **11.1.14** and the relevant requirements in **Part D** listed in the following **(1)** to **(8)**. (1) **1.3.2, Part D** General - General Requirements for Machinery Installations - Astern Power (2) **1.3.7, Part D** General - General Requirements for Machinery Installations - Communication between navigation bridge and control stations for main propulsion machinery (3) **1.3.8, Part D** General - General Requirements for Machinery Installations - Engineers’ Alarm (4) **Chapter 7, Part D** Propellers (5) **13.9, Part D** Piping Systems - Fuel Oil Systems (except **13.9.1**, **13.9.2**, **13.9.4** and **13.9.5**) (6) **13.10, Part D** Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems (except **13.10.1**) (7) **13.12, Part D** Piping Systems - Cooling Systems (8) **Chapter 15, Part D** Steering Gears	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 17 17.5.5-1

Correction	Present	Note
1 Except as provided in the following **-2**, a helideck obstacle-free sector marking is to be located on the *TLOF* perimeter marking and indicated by the use of a black chevron. The helideck obstacle-free sector marking is to comply with the following requirements **(1)** to **(4)**. (1) Each leg of the chevron is to be 0.8 *m* long and 0.1 *m* wide and is to form the angle in the manner shown in **Fig. ~~17~~P17.4**. (2) The obstacle-free sector marking is to indicate the origin of the obstacle-free sector. (3) The obstacle-free sector marking is to indicate the directions of the limits of the sector. (4) The obstacle-free sector marking is to indicate the verified *D*-value of the helideck.	**1** Except as provided in the following **-2**, a helideck obstacle-free sector marking is to be located on the *TLOF* perimeter marking and indicated by the use of a black chevron. The helideck obstacle-free sector marking is to comply with the following requirements **(1)** to **(4)**. (1) Each leg of the chevron is to be 0.8 *m* long and 0.1 *m* wide and is to form the angle in the manner shown in **Fig. 17.4**. (2) The obstacle-free sector marking is to indicate the origin of the obstacle-free sector. (3) The obstacle-free sector marking is to indicate the directions of the limits of the sector. (4) The obstacle-free sector marking is to indicate the verified *D*-value of the helideck.	Reference correction

Rules for the survey and construction of steel ships Part P Chapter 18 18.3.2

Correction	Present	Note
If not included in the official log or tour record, the following additional information or records are to be maintained for a period acceptable to the Administration: (1) Survey records for Periodical Surveys (2) Inspection and maintenance records related to means of access specified in **9.6.5** (3) Light ship data alterations log specified in **12.5.2-5(3)(b)ii), Part B** (4) Testing records and equipment changes for anchors and related equipment specified in **10.3.3** (5) Maintenance, inspection and testing records related to fire-fighting systems specified in **15.2.16-4** (6) Maintenance records related to life-saving equipment specified in **1.1.1-8, ~~Part~~Chapter 1 of the Rules for Safety Equipment** (7) Inspections of cranes specified in **Rules for Cargo Handling Appliances** (8) Rated capacities of lifting and hoisting equipment specified in **9.4.1-2** (9) Muster lists specified in **18.2.11-3** (10) The electrical equipment register specified in **13.4** (11) Maintenance and repair of all electrical equipment in hazardous areas for continued certification in accordance with the international standards referred to in paragraph **13.4**	If not included in the official log or tour record, the following additional information or records are to be maintained for a period acceptable to the Administration: (1) Survey records for Periodical Surveys (2) Inspection and maintenance records related to means of access specified in **9.6.5** (3) Light ship data alterations log specified in **12.5.2-5(3)(b)ii), Part B** (4) Testing records and equipment changes for anchors and related equipment specified in **10.3.3** (5) Maintenance, inspection and testing records related to fire-fighting systems specified in **15.2.16-4** (6) Maintenance records related to life-saving equipment specified in **1.1.1-8, Part 1 of the Rules for Safety Equipment** (7) Inspections of cranes specified in **Rules for Cargo Handling Appliances** (8) Rated capacities of lifting and hoisting equipment specified in **9.4.1-2** (9) Muster lists specified in **18.2.11-3** (10) The electrical equipment register specified in **13.4** (11) Maintenance and repair of all electrical equipment in hazardous areas for continued certification in accordance with the international standards referred to in paragraph **13.4**	Reference correction

Rules for the survey and construction of steel ships Part PS Chapter 6 6.3.3-1

Correction	Present	Note
1 The fire integrity of bulkheads and decks which separate adjacent spaces is to be in accordance with the requirements given **Table PS6.1** and **Table PS6.2** instead of **9.2.4, Part R**. In application of the standards of fire integrity, the respective spaces are classified into the following categories **(1)** to **(13)** in accordance with their risk of fire. The title of each category is intended to be typical rather than restrictive. (1) Control stations (a) Spaces containing emergency sources of power and lighting (b) Wheelhouses and chart rooms (c) Radio rooms (d) Spaces containing fire indicating equipment, fire alarm equipment and fire control equipment (e) Control stations for propulsion machinery provided outside machinery spaces (f) Central production control stations (2) Corridors and lobbies (3) Accommodation spaces (excluding corridors and lobbies) (4) Stairways Interior stairways, lifts and escalators (excluding those wholly contained within machinery spaces) and enclosures thereto (5) Service spaces with low risk of fire Locker rooms and store rooms not used for the storage of flammable liquids and having areas less than 4 m^2, drying rooms and laundries (6) Machinery spaces of Category A Spaces as defined in **3.2.31, Part R** (7) Other machinery spaces	**1** The fire integrity of bulkheads and decks which separate adjacent spaces is to be in accordance with the requirements given **Table PS6.1** and **Table PS6.2** instead of **9.2.4, Part R**. In application of the standards of fire integrity, the respective spaces are classified into the following categories **(1)** to **(13)** in accordance with their risk of fire. The title of each category is intended to be typical rather than restrictive. (1) Control stations (a) Spaces containing emergency sources of power and lighting (b) Wheelhouses and chart rooms (c) Radio rooms (d) Spaces containing fire indicating equipment, fire alarm equipment and fire control equipment (e) Control stations for propulsion machinery provided outside machinery spaces (f) Central production control stations (2) Corridors and lobbies (3) Accommodation spaces (excluding corridors and lobbies) (4) Stairways Interior stairways, lifts and escalators (excluding those wholly contained within machinery spaces) and enclosures thereto (5) Service spaces with low risk of fire Locker rooms and store rooms not used for the storage of flammable liquids and having areas less than 4 m^2, drying rooms and laundries (6) Machinery spaces of Category A Spaces as defined in **3.2.31, Part R** (7) Other machinery spaces	Reference correction

Machinery spaces excluding machinery spaces of Category *A* (8) Crude oil areas Spaces as defined in **1.2.7**~~**, Part R**~~ (9) Production areas Spaces containing production systems, spaces for extracting crude oil and manifolds (10) Hazardous areas Areas defined in **5.2.1** (11) Service spaces with high risk of fire Galleys, pantries containing appliances, paint rooms, lamp rooms, and locker rooms and store rooms having areas of $4m^2$ or more, spaces for the storage of flammable liquids, and workshops which are not included in machinery spaces (12) Spaces on open decks Spaces on open decks, enclosed promenades without risk of fire and spaces outside superstructures and deckhouses (13) Sanitary spaces Spaces containing sanitary and similar accommodations	Machinery spaces excluding machinery spaces of Category *A* (8) Crude oil areas Spaces as defined in **1.2.7, Part R** (9) Production areas Spaces containing production systems, spaces for extracting crude oil and manifolds (10) Hazardous areas Areas defined in **5.2.1** (11) Service spaces with high risk of fire Galleys, pantries containing appliances, paint rooms, lamp rooms, and locker rooms and store rooms having areas of $4m^2$ or more, spaces for the storage of flammable liquids, and workshops which are not included in machinery spaces (12) Spaces on open decks Spaces on open decks, enclosed promenades without risk of fire and spaces outside superstructures and deckhouses (13) Sanitary spaces Spaces containing sanitary and similar accommodations	

Rules for the survey and construction of steel ships Part PS Chapter 7 7.1.12-6

Correction	Present	Note
6 It is to be possible to supply each ballast pump required by **-3** above from emergency sources of electrical power. Arrangements are to be such that systems are capable of restoring Floating Offshore Facilities from the inclinations specified in **7.1.4-2-4** to a level trim and safe draught condition after the loss of any single component in power supply systems.	**6** It is to be possible to supply each ballast pump required by **-3** above from emergency sources of electrical power. Arrangements are to be such that systems are capable of restoring Floating Offshore Facilities from the inclinations specified in **7.1.2-4** to a level trim and safe draught condition after the loss of any single component in power supply systems.	Reference correction

Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.1-1

Correction	Present	Note
1 The Rules for Marine Pollution Prevention Systems (hereinafter referred to as "the Rules") apply to the survey, construction and equipment for the prevention of pollution from ships classed with NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") and intended to be registered as the Marine Pollution Prevention Installations under **Chapter 3 of the Regulations for the Classification and Registry of Ships**. The "Marine Pollution Prevention Installations" means the construction and equipment specified in **~~Part~~Parts 3**, **4**, **7** and **8** and include the emergency plans specified in **~~Part~~Parts 5** and **6**.	**1** The Rules for Marine Pollution Prevention Systems (hereinafter referred to as "the Rules") apply to the survey, construction and equipment for the prevention of pollution from ships classed with NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") and intended to be registered as the Marine Pollution Prevention Installations under **Chapter 3 of the Regulations for the Classification and Registry of Ships**. The "Marine Pollution Prevention Installations" means the construction and equipment specified in **Part 3**, **4**, **7** and **8** and include the emergency plans specified in **Part 5** and **6**.	Wording correction

Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.4-3

Correction	Present	Note
3 With regard to the permission/prohibition of operation of diesel engines in the NOx emission control areas referred to in **1.1.2(15), ~~Pat~~Part 8 of the Rules**, excluding those case where exemption from compliance with the standards specified in *Regulation* 13.5.1 of *Annex* VI is granted, the following **(1)** and **(2)** are to be entered into the Classification Register as descriptive notes for the ship. (1) In the case where diesel engine installations are provided on ships at beginning stage of construction on or after 1 January 2016 (excluding those which fall under the following **(2)**) in accordance with the requirements of *Annex* VI, a note thereof (e.g., NOx-III(2016)) is to be added. (2) In the case where diesel engine installations are provided on ships at beginning stage of construction on or after 1 January 2021 in accordance with the requirements of *Annex* VI, a note thereof (e.g., NOx-III(2021)) is to be added.	**3** With regard to the permission/prohibition of operation of diesel engines in the NOx emission control areas referred to in **1.1.2(15), Pat 8 of the Rules**, excluding those case where exemption from compliance with the standards specified in *Regulation* 13.5.1 of *Annex* VI is granted, the following **(1)** and **(2)** are to be entered into the Classification Register as descriptive notes for the ship. (1) In the case where diesel engine installations are provided on ships at beginning stage of construction on or after 1 January 2016 (excluding those which fall under the following **(2)**) in accordance with the requirements of *Annex* VI, a note thereof (e.g., NOx-III(2016)) is to be added. (2) In the case where diesel engine installations are provided on ships at beginning stage of construction on or after 1 January 2021 in accordance with the requirements of *Annex* VI, a note thereof (e.g., NOx-III(2021)) is to be added.	Wording correction

Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.4-4

Correction	Present	Note
4 Based on **2.1.3-2 of the Rules for the Classification and Registry of Ships**, *“Sulphur Oxides”* (abbreviated as *“SOx”*) is to be affixed to the classification characters of ships provided with the following **(1)** and/or **(2)** that comply with the requirements related to sulphur content specified in **1.2.2-1** or **-2**~~ of 1.2.2-1~~, **Part 8**, or that are compliance methods at least equivalent to those complying with such requirements. The notations referred to in **(1)** and **(2)** below are listed in parentheses after *SOx* according to the provided arrangement/system. Details of the fuel referred to in **(1)** below as well as the purposes of machinery using the fuel referred to in **(1)** below and machinery fitted with the systems referred to in **(2)** below are to be entered in the Classification Register as descriptive notes for the ship. (1) Arrangements for using the low-flashpoint fuel referred to in **2.2.1-28, Part GF of the Rules for the Survey and Construction of Steel Ships** that comply with **Chapter 16, Part N of the Rules for the Survey and Construction of Steel Ships** or comply with **Part GF of the Rules for the Survey and Construction of Steel Ships**: “*Low-Flashpoint Fuel*” (abbreviated as “*LFF*”) (2) Exhaust gas cleaning systems approved by the Administration as an alternative specified in **1.1.3, Part 8** that comply with **Chapter 22, Part D of the Rules for the Survey and Construction of Steel Ships**: “*Exhaust Gas Cleaning System*” (abbreviated as “*EGCS*”)	**4** Based on **2.1.3-2 of the Rules for the Classification and Registry of Ships**, *“Sulphur Oxides”* (abbreviated as *“SOx”*) is to be affixed to the classification characters of ships provided with the following **(1)** and/or **(2)** that comply with the requirements related to sulphur content specified in **-1** or **-2** of **1.2.2-1, Part 8**, or that are compliance methods at least equivalent to those complying with such requirements. The notations referred to in **(1)** and **(2)** below are listed in parentheses after *SOx* according to the provided arrangement/system. Details of the fuel referred to in **(1)** below as well as the purposes of machinery using the fuel referred to in **(1)** below and machinery fitted with the systems referred to in **(2)** below are to be entered in the Classification Register as descriptive notes for the ship. (1) Arrangements for using the low-flashpoint fuel referred to in **2.2.1-28, Part GF of the Rules for the Survey and Construction of Steel Ships** that comply with **Chapter 16, Part N of the Rules for the Survey and Construction of Steel Ships** or comply with **Part GF of the Rules for the Survey and Construction of Steel Ships**: “*Low-Flashpoint Fuel*” (abbreviated as “*LFF*”) (2) Exhaust gas cleaning systems approved by the Administration as an alternative specified in **1.1.3, Part 8** that comply with **Chapter 22, Part D of the Rules for the Survey and Construction of Steel Ships**: “*Exhaust Gas Cleaning System*” (abbreviated as “*EGCS*”)	Wording correction

Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.2-2

Correction	Present	Note
2 Periodical Surveys consist of the following surveys: (1) The construction, equipment and plans specified in ~~**Part**~~**Parts 3** to **6** and **8**: (a) Annual Survey (b) Intermediate Survey (c) Special Survey (2) The equipment specified in **Part 7**: Special Survey	**2** Periodical Surveys consist of the following surveys: (1) The construction, equipment and plans specified in **Part 3** to **6** and **8**: (a) Annual Survey (b) Intermediate Survey (c) Special Survey (2) The equipment specified in **Part 7**: Special Survey	Wording correction

Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.3-6

Correction	Present	Note
6 Unscheduled Surveys 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 considers the ship to be subject to **1.4-3** of the ~~**CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.~~**Conditions of Service for Classification of Ships and Registration of Installations**. At Unscheduled Surveys, investigations, examinations or tests are to be made to the satisfaction of the Surveyor with respect to the matters concerned.	**6** Unscheduled Surveys 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 considers the ship to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**. At Unscheduled Surveys, investigations, examinations or tests are to be made to the satisfaction of the Surveyor with respect to the matters concerned.	Wording correction

Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.6-4

Correction	Present	Note
4 At Special Surveys, where examinations have been carried out during the period between the 4th Annual Survey and the Special Survey specified in **1.1.3-4** according to the requirements for Special Surveys, said examinations to be carried out as Special Surveys may be omitted at the discretion of the Surveyor. However, in case where Annual Surveys or Intermediate Surveys are carried out in advance in accordance with **1.1.4**~~**-2**~~, the Special Survey is to be carried out in accordance with the provisions specified otherwise by the Society.	**4** At Special Surveys, where examinations have been carried out during the period between the 4th Annual Survey and the Special Survey specified in **1.1.3-4** according to the requirements for Special Surveys, said examinations to be carried out as Special Surveys may be omitted at the discretion of the Surveyor. However, in case where Annual Surveys or Intermediate Surveys are carried out in advance in accordance with **1.1.4-2**, the Special Survey is to be carried out in accordance with the provisions specified otherwise by the Society.	Reference correction

Rules for Marine Pollution Prevention Systems Part 2 Chapter 2 2.1.3-3

Correction	Present	Note
3 Inspections on the following items are to be carried out for the equipment for the prevention of discharge by noxious liquid substances from ships carrying noxious liquid substances in bulk: (1) Prewashing system (a) It is to be ensured that the system is provided in accordance with the approved drawings and the procedures and arrangements manual, and is in good working order. (b) Where wash water heating system is provided, it is to be ensured that the system is installed in accordance with the approved drawings, and is in good working order. (c) Where portable washing machines are used, it is to be ensured that the number and location of opening for tank washing are provided in accordance with the approved drawings. (2) Stripping system (a) It is to be ensured that the stripping system is	**3** Inspections on the following items are to be carried out for the equipment for the prevention of discharge by noxious liquid substances from ships carrying noxious liquid substances in bulk: (1) Prewashing system (a) It is to be ensured that the system is provided in accordance with the approved drawings and the procedures and arrangements manual, and is in good working order. (b) Where wash water heating system is provided, it is to be ensured that the system is installed in accordance with the approved drawings, and is in good working order. (c) Where portable washing machines are used, it is to be ensured that the number and location of opening for tank washing are provided in accordance with the approved drawings. (2) Stripping system (a) It is to be ensured that the stripping system is	

provided in accordance with the approved drawings, and is in good working order. (b) It is to be ensured that the amount of residues produced by stripping, which is determined by the water test through the approved procedure and the approved calculation method is within the values given in **Table 4-~~7~~3** specified in **4.3.2 in Part 4**. (c) Where removable pipes and bent pipes are provided, it is to be ensured that they are stowed on board the ship. (3) Discharge outlets below the waterline (a) It is to be ensured that underwater discharge outlets are provided in accordance with the approved drawings. (b) It is to be ensured that means are provided to separate the underwater discharge outlets from those above the water line. (4) Arrangements for discharge to reception facilities It is to be ensured that the arrangements for discharge to reception facilities are provided in accordance with the approved drawings, and are in good working order. (5) Ventilated washing system (a) It is to be ensured that the ventilated washing system is provided in accordance with the approved drawings, and is in good working order. (b) Where portable washing machines are used, it is to be ensured that the necessary blower fan capacity is obtainable.	provided in accordance with the approved drawings, and is in good working order. (b) It is to be ensured that the amount of residues produced by stripping, which is determined by the water test through the approved procedure and the approved calculation method is within the values given in **Table 4-7** specified in **4.3.2 in Part 4**. (c) Where removable pipes and bent pipes are provided, it is to be ensured that they are stowed on board the ship. (3) Discharge outlets below the waterline (a) It is to be ensured that underwater discharge outlets are provided in accordance with the approved drawings. (b) It is to be ensured that means are provided to separate the underwater discharge outlets from those above the water line. (4) Arrangements for discharge to reception facilities It is to be ensured that the arrangements for discharge to reception facilities are provided in accordance with the approved drawings, and are in good working order. (5) Ventilated washing system (a) It is to be ensured that the ventilated washing system is provided in accordance with the approved drawings, and is in good working order. (b) Where portable washing machines are used, it is to be ensured that the necessary blower fan capacity is obtainable.	Reference correction

Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-5

Correction	Present	Note
5 For ships, other than self-elevating drilling units, oil fuel tanks are to be located above the moulded line of the bottom shell plating nowhere less than the distance h as specified below. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, the oil fuel tank boundary line is to run parallel to the line of the midship flat bottom as shown in ~~**Figure**~~**Fig. 3-1**. $h = B/20$ (m) or, $h = 2.0$ (m), whichever is the lesser. The minimum value of $h = 0.76$ (m)	**5** For ships, other than self-elevating drilling units, oil fuel tanks are to be located above the moulded line of the bottom shell plating nowhere less than the distance h as specified below. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, the oil fuel tank boundary line is to run parallel to the line of the midship flat bottom as shown in **Figure 3-1**. $h = B/20$ (m) or, $h = 2.0$ (m), whichever is the lesser. The minimum value of $h = 0.76$ (m)	Wording correction

Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-6

Correction	Present	Note
6 For ships having an aggregate oil fuel capacity of $600m^3$ or more but less than $5,000m^3$, oil fuel tanks are to be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in ~~**Figure**~~**Fig. 3-2**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.4 + 2.4\,C/20,000$ (m) The minimum value of $w = 1.0$ (m), however for individual tanks with an oil fuel capacity of less than $500m^3$ the minimum value is $0.76m$.	**6** For ships having an aggregate oil fuel capacity of $600m^3$ or more but less than $5,000m^3$, oil fuel tanks are to be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in **Figure 3-2**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.4 + 2.4\,C/20,000$ (m) The minimum value of $w = 1.0$ (m), however for individual tanks with an oil fuel capacity of less than $500m^3$ the minimum value is $0.76m$.	Wording correction

Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-7

Correction	Present	Note
7 For ships having an aggregate oil fuel capacity of 5,000m^3 and over, oil fuel tanks are to be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in **~~Figure~~Fig. 3-2**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.5 + C/20{,}000$ (m) or $w = 2.0$ (m), whichever is the lesser. The minimum value of $w = 1.0$ (m)	**7** For ships having an aggregate oil fuel capacity of 5,000m^3 and over, oil fuel tanks are to be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in **Figure 3-2**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.5 + C/20{,}000$ (m) or $w = 2.0$ (m), whichever is the lesser. The minimum value of $w = 1.0$ (m)	Wording correction

Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-10

Correction	Present	Note
10 Notwithstanding the provisions of **-5** to **-7**, oil fuel tanks may be located so as to border on the ship's outer shell, provided that ships are to comply with the accidental oil fuel outflow performance standard specified below: (1) The level of protection against oil fuel pollution in the event of collision or grounding is to be assessed on the basis of the mean oil outflow parameter (O_M) as follows: $O_M \leq 0.0157 - 1.14 \times 10^{-6} \cdot C$ for $600 \leq C < 5{,}000$ (m^3) $O_M \leq 0.010$ for $C \geq 5{,}000$ (m^3) O_M : Mean oil outflow parameter C : Total volume of oil fuel, in m^3, at 98% tank filling (2) The following general assumptions are to apply when calculating the mean oil outflow parameter specified in **(1)** and **(2)** above. (a) The ship is to be assumed loaded to the partial load line draught d_P without trim or heel. (b) All oil fuel tanks are to be assumed loaded to 98% of their volumetric capacity. (c) The nominal density of the oil fuel (ρ_n) is generally to be taken as 1,000kg/m^3. If the density of the oil fuel is specially restricted to a lesser value, the lesser value may be applied. (d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise. (3) The following assumptions are to be used when combining the oil outflow parameters. (a) The mean oil outflow is to be calculated independently for side damage and bottom	**10** Notwithstanding the provisions of **-5** to **-7**, oil fuel tanks may be located so as to border on the ship's outer shell, provided that ships are to comply with the accidental oil fuel outflow performance standard specified below: (1) The level of protection against oil fuel pollution in the event of collision or grounding is to be assessed on the basis of the mean oil outflow parameter (O_M) as follows: $O_M \leq 0.0157 - 1.14 \times 10^{-6} \cdot C$ for $600 \leq C < 5{,}000$ (m^3) $O_M \leq 0.010$ for $C \geq 5{,}000$ (m^3) O_M : Mean oil outflow parameter C : Total volume of oil fuel, in m^3, at 98% tank filling (2) The following general assumptions are to apply when calculating the mean oil outflow parameter specified in **(1)** and **(2)** above. (a) The ship is to be assumed loaded to the partial load line draught d_P without trim or heel. (b) All oil fuel tanks are to be assumed loaded to 98% of their volumetric capacity. (c) The nominal density of the oil fuel (ρ_n) is generally to be taken as 1,000kg/m^3. If the density of the oil fuel is specially restricted to a lesser value, the lesser value may be applied. (d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise. (3) The following assumptions are to be used when combining the oil outflow parameters. (a) The mean oil outflow is to be calculated independently for side damage and bottom	

damage and then combined into the non-dimensional oil outflow parameter O_M, as follows: $O_M = (0.4 \cdot O_{MS} + 0.6 \cdot O_{MB})/C$ O_{MS} : Mean outflow for side damage (m^3) O_{MB} : Mean outflow for bottom damage (m^3) (b) For bottom damage, independent calculations for mean outflow are to be for 0*m* and minus 2.5*m* tide conditions, and then combined as follows: $O_{MB} = 0.7 \cdot O_{MB(0)} + 0.3 \cdot O_{MB(2.5)}$ $O_{MB(0)}$: Mean outflow for 0*m* tide condition (m^3) $O_{MB(2.5)}$: Mean outflow for minus 2.5*m* tide condition (m^3) (4) The mean outflow for side damage O_{MS} is to be calculated as follows: $O_{MS} = \sum_i^n P_{S(i)} \cdot O_{S(i)}$ (m^3) *i* : Represents each oil fuel tank under consideration *n* : Total number of oil fuel tanks $P_{S(i)}$: The probability of penetrating oil fuel tank *i* from side damage, calculated in accordance with **(6)** $O_{S(i)}$: The outflow, in m^3, from side damage to oil fuel tank *i*, which is assumed equal to the total volume in oil fuel tank *i* at 98% filling (5) The mean outflow for bottom damage is to be calculated for each tidal condition as follows: (a) $O_{MB(0)} = \sum_i^n P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)}$ (m^3) *i* : Represents each oil fuel tank under consideration	damage and then combined into the non-dimensional oil outflow parameter O_M, as follows: $O_M = (0.4 \cdot O_{MS} + 0.6 \cdot O_{MB})/C$ O_{MS} : Mean outflow for side damage (m^3) O_{MB} : Mean outflow for bottom damage (m^3) (b) For bottom damage, independent calculations for mean outflow are to be for 0*m* and minus 2.5*m* tide conditions, and then combined as follows: $O_{MB} = 0.7 \cdot O_{MB(0)} + 0.3 \cdot O_{MB(2.5)}$ $O_{MB(0)}$: Mean outflow for 0*m* tide condition (m^3) $O_{MB(2.5)}$: Mean outflow for minus 2.5*m* tide condition (m^3) (4) The mean outflow for side damage O_{MS} is to be calculated as follows: $O_{MS} = \sum_i^n P_{S(i)} \cdot O_{S(i)}$ (m^3) *i* : Represents each oil fuel tank under consideration *n* : Total number of oil fuel tanks $P_{S(i)}$: The probability of penetrating oil fuel tank *i* from side damage, calculated in accordance with **(6)** $O_{S(i)}$: The outflow, in m^3, from side damage to oil fuel tank *i*, which is assumed equal to the total volume in oil fuel tank *i* at 98% filling (5) The mean outflow for bottom damage is to be calculated for each tidal condition as follows: (a) $O_{MB(0)} = \sum_i^n P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)}$ (m^3) *i* : Represents each oil fuel tank under consideration	

n : Total number of oil fuel tanks $P_{B(i)}$: The probability of penetrating oil fuel tank i from bottom damage, calculated in accordance with **(7)** $O_{B(i)}$: The outflow, in m^3, from side damage to oil fuel tank i, calculated in accordance with **(c)** and **(d)** $C_{DB(i)}$: Factor to account for oil capture as defined in **(e)** (b) $O_{MB(2.5)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)} \quad (m^3)$ i, n, $P_{B(i)}$ and $C_{DB(i)}$: As defined in **(a)** $O_{B(i)}$: The outflow from oil fuel tank i, in m^3, after tidal change (c) The oil outflow $O_{B(i)}$ for each oil fuel tank is to be calculated based on pressure balance principles, in accordance with the following assumptions: i) The ship is to be assumed stranded with zero trim and heel, with the stranded draught prior to tidal change equal to the partial load line draught d_P. ii) The oil fuel level after damage is to be calculated as follows: $h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$ h_F : The height of the oil fuel surface above Z_l (m) t_C : The tidal change, in m. Reductions in tide are to be expressed as negative values. Z_l : The height of the lowest point in the oil fuel tank above baseline (m) ρ_S : Density of seawater, to be taken as 1,025 kg/m^3 ρ_n : Nominal density of the oil fuel, as	n : Total number of oil fuel tanks $P_{B(i)}$: The probability of penetrating oil fuel tank i from bottom damage, calculated in accordance with **(7)** $O_{B(i)}$: The outflow, in m^3, from side damage to oil fuel tank i, calculated in accordance with **(c)** and **(d)** $C_{DB(i)}$: Factor to account for oil capture as defined in **(e)** (b) $O_{MB(2.5)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)} \quad (m^3)$ i, n, $P_{B(i)}$ and $C_{DB(i)}$: As defined in **(a)** $O_{B(i)}$: The outflow from oil fuel tank i, in m^3, after tidal change (c) The oil outflow $O_{B(i)}$ for each oil fuel tank is to be calculated based on pressure balance principles, in accordance with the following assumptions: i) The ship is to be assumed stranded with zero trim and heel, with the stranded draught prior to tidal change equal to the partial load line draught d_P. ii) The oil fuel level after damage is to be calculated as follows: $h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$ h_F : The height of the oil fuel surface above Z_l (m) t_C : The tidal change, in m. Reductions in tide are to be expressed as negative values. Z_l : The height of the lowest point in the oil fuel tank above baseline (m) ρ_S : Density of seawater, to be taken as 1,025 kg/m^3 ρ_n : Nominal density of the oil fuel, as	

defined in **(2)(c)** (d) The oil outflow $O_{B(i)}$ for any tanks bounding the bottom shell is to be taken not less than the following formula, but no more than the tank capacity: $O_{B(i)} = H_W \cdot A$ H_W is to be taken as follows: i) $H_W = 1.0$ (*m*), when $Y_B = 0$ ii) $H_W = B_B/50$ but not greater than 0.4*m*, when Y_B is greater than $B_B/5$ or 11.5*m*, whichever is less. For Y_B values outboard $B_B/5$ or 11.5*m*, whichever is less, H_W is to be linearly interpolated. (See ~~**Figure**~~**Fig. 3-3**) iii) "H_W" is to be measured upwards from the midship flat bottom line. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, H_W is to be measured from a line parallel to the midship flat bottom, as shown for distance "*h*" in ~~**Figure**~~**Fig. 3-1**. Y_B : The minimum value of Y_B over the length of the oil fuel tank, where at any given location, Y_B is the transverse distance between the side shell at waterline d_B and the tank at or below waterline d_B. A : The maximum horizontal projected area of the oil fuel tank up to the level of H_W from the bottom of the tank. (e) In the case of bottom damage, a portion from the outflow from an oil fuel tank may be captured by non-oil compartments. This effect is approximated by application of the factor $C_{DB(i)}$ for each tank, which is to be taken as follows: $C_{DB(i)} = 0.6$ for oil fuel tanks bounded from	defined in **(2)(c)** (d) The oil outflow $O_{B(i)}$ for any tanks bounding the bottom shell is to be taken not less than the following formula, but no more than the tank capacity: $O_{B(i)} = H_W \cdot A$ H_W is to be taken as follows: i) $H_W = 1.0$ (*m*), when $Y_B = 0$ ii) $H_W = B_B/50$ but not greater than 0.4*m*, when Y_B is greater than $B_B/5$ or 11.5*m*, whichever is less. For Y_B values outboard $B_B/5$ or 11.5*m*, whichever is less, H_W is to be linearly interpolated. (See **Figure 3-3**) iii) "H_W" is to be measured upwards from the midship flat bottom line. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, H_W is to be measured from a line parallel to the midship flat bottom, as shown for distance "*h*" in **Figure 3-1**. Y_B : The minimum value of Y_B over the length of the oil fuel tank, where at any given location, Y_B is the transverse distance between the side shell at waterline d_B and the tank at or below waterline d_B. A : The maximum horizontal projected area of the oil fuel tank up to the level of H_W from the bottom of the tank. (e) In the case of bottom damage, a portion from the outflow from an oil fuel tank may be captured by non-oil compartments. This effect is approximated by application of the factor $C_{DB(i)}$ for each tank, which is to be taken as follows: $C_{DB(i)} = 0.6$ for oil fuel tanks bounded from	Wording correction Wording correction

below by non-oil compartments; $C_{DB(i)} = 1.0$ for otherwise. (6) The probability P_S of breaching a compartment from side damage is to be calculated as follows: $P_S = P_{SL} \cdot P_{SV} \cdot P_{ST}$ $P_{SL} = 1 - P_{Sf} - P_{Sa}$: Probability the damage will extend into the longitudinal zone bounded by X_a and X_f $P_{SV} = 1 - P_{Su} - P_{Sl}$: Probability the damage will extend into the vertical zone bounded by Z_l and Z_u $P_{ST} = 1 - P_{Sy}$: Probability the damage will extend transversely beyond the boundary defined by y P_{Sa}, P_{Sf}, P_{Sl} and P_{Su} : Probabilities defined as the follows, are to be determined by linear interpolation from the table of probabilities for side damage provided in **Table 3-1**. P_{Sa} : The probability the damage will lie entirely aft of location X_a/L_f P_{Sf} : The probability the damage will lie entirely forward of location X_f/L_f P_{Sl} : The probability the damage will lie entirely below the tank P_{Su} : The probability the damage will lie entirely above the tank P_{Sy} : The probability the damage will lie entirely outboard of the tank. P_{Sy} is to be calculated as follows. However, P_{Sy} is not to be taken greater than 1.	below by non-oil compartments; $C_{DB(i)} = 1.0$ for otherwise. (6) The probability P_S of breaching a compartment from side damage is to be calculated as follows: $P_S = P_{SL} \cdot P_{SV} \cdot P_{ST}$ $P_{SL} = 1 - P_{Sf} - P_{Sa}$: Probability the damage will extend into the longitudinal zone bounded by X_a and X_f $P_{SV} = 1 - P_{Su} - P_{Sl}$: Probability the damage will extend into the vertical zone bounded by Z_l and Z_u $P_{ST} = 1 - P_{Sy}$: Probability the damage will extend transversely beyond the boundary defined by y P_{Sa}, P_{Sf}, P_{Sl} and P_{Su} : Probabilities defined as the follows, are to be determined by linear interpolation from the table of probabilities for side damage provided in **Table 3-1**. P_{Sa} : The probability the damage will lie entirely aft of location X_a/L_f P_{Sf} : The probability the damage will lie entirely forward of location X_f/L_f P_{Sl} : The probability the damage will lie entirely below the tank P_{Su} : The probability the damage will lie entirely above the tank P_{Sy} : The probability the damage will lie entirely outboard of the tank. P_{Sy} is to be calculated as follows. However, P_{Sy} is not to be taken greater than 1.	

$P_{Sy} = (24.96 - 199.6\,y/B_S)(y/B_S)$ for $y/B_S \le 0.05$ $P_{Sy} = 0.749 + \{5 - 44.4(y/B_S - 0.05)\}(y/B_S - 0.05)$ for $0.05 < y/B_S < 0.1$ $P_{Sy} = 0.888 + 0.56(y/B_S - 0.1)$ for $y/B_S \ge 0.1$ X_a : The longitudinal distance from the aft terminal of L_f to the aftmost point on the compartment being considered (m) X_f : The longitudinal distance from the aft terminal of L_f to the foremost point on the compartment being considered (m) Z_l : The vertical distance from the moulded baseline to the lowest point on the compartment being considered (m). Where Z_l is greater than D_S, Z_l is to be taken as D_S. Z_u : The vertical distance from the moulded baseline to the highest point on the compartment being considered (m). Where Z_u is greater than D_S, Z_u is to be taken as D_S. y : The minimum horizontal distance measured at right angles to the centreline between the compartment under consideration and the side shell (m). In way of the turn of the bilge, y need not to be considered below a distance h above baseline, where h is lesser of $B/10$, $3m$ or the top of the tank. (7) The probability P_B of breaching a compartment from bottom damage is to be calculated as follows: $P_B = P_{BL} \cdot P_{BT} \cdot P_{BV}$	$P_{Sy} = (24.96 - 199.6\,y/B_S)(y/B_S)$ for $y/B_S \le 0.05$ $P_{Sy} = 0.749 + \{5 - 44.4(y/B_S - 0.05)\}(y/B_S - 0.05)$ for $0.05 < y/B_S < 0.1$ $P_{Sy} = 0.888 + 0.56(y/B_S - 0.1)$ for $y/B_S \ge 0.1$ X_a : The longitudinal distance from the aft terminal of L_f to the aftmost point on the compartment being considered (m) X_f : The longitudinal distance from the aft terminal of L_f to the foremost point on the compartment being considered (m) Z_l : The vertical distance from the moulded baseline to the lowest point on the compartment being considered (m). Where Z_l is greater than D_S, Z_l is to be taken as D_S. Z_u : The vertical distance from the moulded baseline to the highest point on the compartment being considered (m). Where Z_u is greater than D_S, Z_u is to be taken as D_S. y : The minimum horizontal distance measured at right angles to the centreline between the compartment under consideration and the side shell (m). In way of the turn of the bilge, y need not to be considered below a distance h above baseline, where h is lesser of $B/10$, $3m$ or the top of the tank. (7) The probability P_B of breaching a compartment from bottom damage is to be calculated as follows: $P_B = P_{BL} \cdot P_{BT} \cdot P_{BV}$	

$P_{BL} = 1 - P_{Bf} - P_{Ba}$: Probability the damage will extend into the longitudinal zone bounded by X_a and X_f $P_{BT} = 1 - P_{Bp} - P_{Bs}$: Probability the damage will extend into the transverse zone bounded by Y_p and Y_s $P_{BV} = 1 - P_{Bz}$: Probability the damage will extend vertically beyond the boundary defined by z P_{Ba}, P_{Bf}, P_{Bp} and P_{Bs} : Probabilities defined as the follows, are to be determined by linear interpolation from the table of probabilities for side damage provided in **Table 3-2**. P_{Ba} : The probability the damage will lie entirely aft of location X_a / L_f P_{Bf} : The probability the damage will lie entirely forward of location X_f / L_f P_{Bp} : The probability the damage will lie entirely to port of the tank P_{Bs} : The probability the damage will lie entirely to starboard of the tank P_{Bz} : The probability the damage will lie entirely below the tank. P_{Bz} is to be calculated as follows. However, P_{Bz} is not to be taken greater than 1. $P_{Bz} = (14.5 - 67\,z/D_S)(z/D_S)$ for $z/D_S \le 0.1$ $P_{Bz} = 0.78 + 1.1(z/D_S - 0.1)$ for $z/D_S > 0.1$	$P_{BL} = 1 - P_{Bf} - P_{Ba}$: Probability the damage will extend into the longitudinal zone bounded by X_a and X_f $P_{BT} = 1 - P_{Bp} - P_{Bs}$: Probability the damage will extend into the transverse zone bounded by Y_p and Y_s $P_{BV} = 1 - P_{Bz}$: Probability the damage will extend vertically beyond the boundary defined by z P_{Ba}, P_{Bf}, P_{Bp} and P_{Bs} : Probabilities defined as the follows, are to be determined by linear interpolation from the table of probabilities for side damage provided in **Table 3-2**. P_{Ba} : The probability the damage will lie entirely aft of location X_a / L_f P_{Bf} : The probability the damage will lie entirely forward of location X_f / L_f P_{Bp} : The probability the damage will lie entirely to port of the tank P_{Bs} : The probability the damage will lie entirely to starboard of the tank P_{Bz} : The probability the damage will lie entirely below the tank. P_{Bz} is to be calculated as follows. However, P_{Bz} is not to be taken greater than 1. $P_{Bz} = (14.5 - 67\,z/D_S)(z/D_S)$ for $z/D_S \le 0.1$ $P_{Bz} = 0.78 + 1.1(z/D_S - 0.1)$ for $z/D_S > 0.1$	

D_S : The moulded depth, in m, measured at mid-length to the upper deck at side X_a and X_f : As defined in **(6)** Y_p : The transverse distance from the port-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centerline (m). Y_s : The transverse distance from the starboard-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centerline (m) z : The minimum value of z over the length of the compartment, where, at any given longitudinal location, z is the vertical distance from the lower point of the bottom shell at that longitudinal location to the lower point of the compartment at that longitudinal location (m). (8) For the purpose of maintenance and inspection, any oil fuel tanks that do not border the outer shell plating are to be located no closer to the bottom shell plating than the minimum value of h in **-5** and no closer to the side shell plating than the applicable minimum value of w in **-6** or **-7**.	D_S : The moulded depth, in m, measured at mid-length to the upper deck at side X_a and X_f : As defined in **(6)** Y_p : The transverse distance from the port-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centerline (m). Y_s : The transverse distance from the starboard-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centerline (m) z : The minimum value of z over the length of the compartment, where, at any given longitudinal location, z is the vertical distance from the lower point of the bottom shell at that longitudinal location to the lower point of the compartment at that longitudinal location (m). (8) For the purpose of maintenance and inspection, any oil fuel tanks that do not border the outer shell plating are to be located no closer to the bottom shell plating than the minimum value of h in **-5** and no closer to the side shell plating than the applicable minimum value of w in **-6** or **-7**.	

Rules for Marine Pollution Prevention Systems Part 3 Chapter 3 3.2.4(1)

Correction	Present	Note
(1) Every oil tanker of 5,000 *tonnes* deadweight and above is to comply with any one of the following requirements **(a)** to **(c)** : (a) The entire cargo tank length is to be protected by ballast tanks or spaces other than tanks that carry oil as follows: i) Wing tanks or spaces are to extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They are to be arranged such that the cargo tanks are located inboad of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in **Fig. 3-4**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.5 + \frac{DW}{20,000}$ or 2.0*m*, whichever is the lesser. However, the minimum value of *h* = 1.0*m* ii) At any cross-section the depth of each double bottom tank or space is to be such that the distance *h* between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in **Fig. 3-4** is not less than specified below: *h* = *B*/15 or 2.0*m*, whichever is the lesser. However, the minimum value of *h* = 1.0*m* iii) When the distances *h* and *w* are different at turn of the bilge area or at locations without	(1) Every oil tanker of 5,000 *tonnes* deadweight and above is to comply with any one of the following requirements **(a)** to **(c)** : (a) The entire cargo tank length is to be protected by ballast tanks or spaces other than tanks that carry oil as follows: i) Wing tanks or spaces are to extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They are to be arranged such that the cargo tanks are located inboad of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in **Fig. 3-4**, is measured at any cross-section at right angles to the side shell, as specified below: $w = 0.5 + \frac{DW}{20,000}$ or 2.0*m*, whichever is the lesser. However, the minimum value of *h* = 1.0*m* ii) At any cross-section the depth of each double bottom tank or space is to be such that the distance *h* between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in **Fig. 3-4** is not less than specified below: *h* = *B*/15 or 2.0*m*, whichever is the lesser. However, the minimum value of *h* = 1.0*m* iii) When the distances *h* and *w* are different at turn of the bilge area or at locations without	

a clearly defined turn of the bilge, the distance w is to have preference at levels exceeding $1.5h$ above the base line as shown in **Fig. 3-4**. iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and afterpeak tanks are not to be less than the capacity of segregated ballast tanks necessary to meet the requirements of **3.2.3(1)**. Wing tanks or spaces and double bottom tanks used to meet the requirements of **3.2.3(1)** are to be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship. v) Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance h provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not to be less than $0.5h$. vi) Ballast piping and other piping such as sounding and vent piping to ballast tanks are not to pass through cargo tanks. Cargo piping and similar piping to cargo tanks are not to pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.	a clearly defined turn of the bilge, the distance w is to have preference at levels exceeding $1.5h$ above the base line as shown in **Fig. 3-4**. iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and afterpeak tanks are not to be less than the capacity of segregated ballast tanks necessary to meet the requirements of **3.2.3(1)**. Wing tanks or spaces and double bottom tanks used to meet the requirements of **3.2.3(1)** are to be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship. v) Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance h provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not to be less than $0.5h$. vi) Ballast piping and other piping such as sounding and vent piping to ballast tanks are not to pass through cargo tanks. Cargo piping and similar piping to cargo tanks are not to pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.	

(b) The entire cargo tank length is to be protected by mid-deck plating, ballast tanks or spaces other than cargo and fuel oil tanks as follows: i) The cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea is not to exceed the external hydrostatic water pressure as expressed by the following formula : $f \cdot h_c \cdot \rho_c \cdot g + 100 \cdot \Delta p \leq d_n \cdot \rho_s \cdot g$ where: h_c : height of cargo in contact with the bottom shell plating in *m* ρ_c : maximum cargo density in t/m^3 d_n : minimum operating draught under any expected loading condition in *m* ρ_s : density of sea water in t/m^3 Δp : maximum set pressure of pressure/vacuum valve provided for the cargo tank in bars f : safety factor = 1.1 g : standard acceleration of gravity = 9.81 $m/sec.^2$ ii) Any horizontal partition necessary to fulfill the above requirements is to be located at a height of not less than *B*/6 or 6*m*, whichever is the lesser, but not more than 0.6*D*, above the base line where *D* is the moulded depth amidships. iii) The location of wing tanks or spaces is to be as defined in **3.2.4(1)(a)i)** except that, below a level 1.5*h* above the baseline where *h* is as defined in **3.2.4(1)(a)ii)**, the cargo tank boundary line may be vertical down to the	(b) The entire cargo tank length is to be protected by mid-deck plating, ballast tanks or spaces other than cargo and fuel oil tanks as follows: i) The cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea is not to exceed the external hydrostatic water pressure as expressed by the following formula : $f \cdot h_c \cdot \rho_c \cdot g + 100 \cdot \Delta p \leq d_n \cdot \rho_s \cdot g$ where: h_c : height of cargo in contact with the bottom shell plating in *m* ρ_c : maximum cargo density in t/m^3 d_n : minimum operating draught under any expected loading condition in *m* ρ_s : density of sea water in t/m^3 Δp : maximum set pressure of pressure/vacuum valve provided for the cargo tank in bars f : safety factor = 1.1 g : standard acceleration of gravity = 9.81 $m/sec.^2$ ii) Any horizontal partition necessary to fulfill the above requirements is to be located at a height of not less than *B*/6 or 6*m*, whichever is the lesser, but not more than 0.6*D*, above the base line where *D* is the moulded depth amidships. iii) The location of wing tanks or spaces is to be as defined in **3.2.4(1)(a)i)** except that, below a level 1.5*h* above the baseline where *h* is as defined in **3.2.4(1)(a)ii)**, the cargo tank boundary line may be vertical down to the	

bottom plating, as shown in **Fig. 3-5**. iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, forepeak tanks and afterpeak tanks are to be comply with the requirements of **3.2.4(1)(a)iv)**. v) Ballast piping and cargo piping are to be comply with the requirements of **3.2.4(1)(a)vi)**. (c) Other methods of design and construction of oil tankers may be accepted as alternatives to the requirements prescribed in **3.2.4(1)(a)**, provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding by the Society. (2) Oil tankers of less than 5,000 *tonnes* deadweight are to comply with the following requirements **(a)** and **(b)**: (a) Double bottom tanks or spaces in accordance with **3.2.4(1)(a)ii)** are to be arranged along the entire cargo tank length. However, the distance h specified in **3.2.4(1)(a)ii)** may comply with the following: $h=B/15$ (m) However, the minimum value of $h=0.76m$ in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line is to run parallel to the line of the mid-ship flat bottom as shown in **Fig. 3-6**. (b) The capacity of each cargo tanks is not to exceed $700m^3$ unless wing tanks or spaces in accordance with **3.2.4(1)(a)i)** are arranged along the entire cargo tank length. However, the distance w	bottom plating, as shown in **Fig. 3-5**. iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, forepeak tanks and afterpeak tanks are to be comply with the requirements of **3.2.4(1)(a)iv)**. v) Ballast piping and cargo piping are to be comply with the requirements of **3.2.4(1)(a)vi)**. (c) Other methods of design and construction of oil tankers may be accepted as alternatives to the requirements prescribed in **3.2.4(1)(a)**, provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding by the Society. (2) Oil tankers of less than 5,000 *tonnes* deadweight are to comply with the following requirements **(a)** and **(b)**: (a) Double bottom tanks or spaces in accordance with **3.2.4(1)(a)ii)** are to be arranged along the entire cargo tank length. However, the distance h specified in **3.2.4(1)(a)ii)** may comply with the following: $h=B/15$ (m) However, the minimum value of $h=0.76m$ in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line is to run parallel to the line of the mid-ship flat bottom as shown in **Fig. 3-6**. (b) The capacity of each cargo tanks is not to exceed $700m^3$ unless wing tanks or spaces in accordance with **3.2.4(1)(a)i)** are arranged along the entire cargo tank length. However, the distance w	

specified in **3.2.4(1)(a)i)** may comply with the following: $w = 0.4 + \frac{2.4DW}{20{,}000}\ (m)$ However, the minimum value of *h*=0.76*m* (3) Notwithstanding the requirement of **1.2.1~~.3~~-1**, for an oil tanker of 500 *gross tonnage* and above, which is engaged in international voyages and which were at beginning stage of construction on and after 1 September 1984, oil is not to be carried in any space extending forward of a collision bulkhead located in accordance with **2.2.1.1-1** and **-2, Part 1, Part C of the Rules for the Survey and Construction of Steel Ships**. An oil tanker other than the above is not to carry oil in any space extending forward of the transverse plane perpendicular to the centreline that is located as if it were a collision bulkhead located in accordance with that requirement.	specified in **3.2.4(1)(a)i)** may comply with the following: $w = 0.4 + \frac{2.4DW}{20{,}000}\ (m)$ However, the minimum value of *h*=0.76*m* (3) Notwithstanding the requirement of **1.1.3-1**, for an oil tanker of 500 *gross tonnage* and above, which is engaged in international voyages and which were at beginning stage of construction on and after 1 September 1984, oil is not to be carried in any space extending forward of a collision bulkhead located in accordance with **2.2.1.1-1** and **-2, Part 1, Part C of the Rules for the Survey and Construction of Steel Ships**. An oil tanker other than the above is not to carry oil in any space extending forward of the transverse plane perpendicular to the centreline that is located as if it were a collision bulkhead located in accordance with that requirement.	Reference correction

Rules for Marine Pollution Prevention Systems Part 4 Chapter 2 2.2.3

Correction	Present	Note
Notwithstanding the provisions in **2.2.2**, an Administration may exempt ships from the carriage requirements under **Part S of the Rules for the Survey and Construction of Steel Ships** or **Bulk Chemical Code** for ships certified to carry individually identified vegetable oils in **Table S17.1 in Part S of the Rules for the Survey and Construction of Steel Ships**, provided the ships complies with the following conditions: (1) Ships shall meet all requirements for ship type 3 as identified in **2.1.2~~-1~~(3) in Part S of the Rules for the Survey and Construction of Steel Ships** except for cargo tank location. (2) Under this regulation, cargo tanks shall be located at the following distances inboard. The entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oils as follows: (a) Wing tanks or spaces shall be arranged such that cargo tanks are located inboard of the moulded line of the side shell plating nowhere less than 760 *mm*. (b) Double bottom tanks or spaces shall be arranged such that the distance between the bottom of the cargo tanks and the moulded line of the bottom shell plating is not less than B/15 (*m*) or 2.0 *m* at the centerline, whichever is the lesser. The minimum distance shall be 1.0 *m*.	Notwithstanding the provisions in **2.2.2**, an Administration may exempt ships from the carriage requirements under **Part S of the Rules for the Survey and Construction of Steel Ships** or **Bulk Chemical Code** for ships certified to carry individually identified vegetable oils in **Table S17.1 in Part S of the Rules for the Survey and Construction of Steel Ships**, provided the ships complies with the following conditions: (1) Ships shall meet all requirements for ship type 3 as identified in **2.1.2-1(3) in Part S of the Rules for the Survey and Construction of Steel Ships** except for cargo tank location. (2) Under this regulation, cargo tanks shall be located at the following distances inboard. The entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oils as follows: (a) Wing tanks or spaces shall be arranged such that cargo tanks are located inboard of the moulded line of the side shell plating nowhere less than 760 *mm*. (b) Double bottom tanks or spaces shall be arranged such that the distance between the bottom of the cargo tanks and the moulded line of the bottom shell plating is not less than B/15 (*m*) or 2.0 *m* at the centerline, whichever is the lesser. The minimum distance shall be 1.0 *m*.	Reference correction

Rules for Marine Pollution Prevention Systems Part 4 Chapter 4 4.5.1-2

Correction	Present	Note
2 For ships intending to discharge the residue/water mixture generated by tank washing to reception facilities exclusively through the discharge arrangements of the ship, relaxation of the requirements of the preceding **~~4.6.1~~-1** above may be considered where the Society judges it to be appropriate.	**2** For ships intending to discharge the residue/water mixture generated by tank washing to reception facilities exclusively through the discharge arrangements of the ship, relaxation of the requirements of the preceding **4.6.1-1** above may be considered where the Society judges it to be appropriate.	Wording correction

Rules for Marine Pollution Prevention Systems Part 9 Chapter 2 2.1.1

Correction	Present	Note
The documents in the following **(1)** to **(5)** are to be those where operation in polar waters is taken into account, as appropriate. (1) The Oil Record Books specified in **1.2.2, Part 3**; (2) The Procedures and Arrangements Manual for the approved crude oil washing system specified in **1.3.2-1(1)(b), Part 2**; (3) The operation manual for the oil discharge monitoring and control system specified in **3.3.1-9, Part ~~2~~3**; (4) The clean ballast tank operations manual specified in **4.3.4-4, Part 3**; and (5) The shipboard oil pollution emergency plan specified in **Part 5** or the shipboard marine pollution emergency plan specified in **2.2.3, Part 6**.	The documents in the following **(1)** to **(5)** are to be those where operation in polar waters is taken into account, as appropriate. (1) The Oil Record Books specified in **1.2.2, Part 3**; (2) The Procedures and Arrangements Manual for the approved crude oil washing system specified in **1.3.2-1(1)(b), Part 2**; (3) The operation manual for the oil discharge monitoring and control system specified in **3.3.1-9, Part 2**; (4) The clean ballast tank operations manual specified in **4.3.4-4, Part 3**; and (5) The shipboard oil pollution emergency plan specified in **Part 5** or the shipboard marine pollution emergency plan specified in **2.2.3, Part 6**.	Reference correction

Rules for Radio Installations Chapter 1 1.1.1-1

Correction	Present	Note
1 Rules for Radio Installations (hereinafter referred to as "the Rules") apply to the radio installations of ships classed or to be classed with NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") under **Chapter 2 of the Regulations for the Classification and Registry of Ships** and intended to be registered under **Chapter 3 of the** ~~same~~ **Regulations**~~.~~ **for the Classification and Registry of Ships**.	**1** Rules for Radio Installations (hereinafter referred to as "the Rules") apply to the radio installations of ships classed or to be classed with NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") under **Chapter 2 of the Regulations for the Classification and Registry of Ships** and intended to be registered under **Chapter 3** of the same Regulations.	Wording correction

Rules for Ballast Water Management Installations Part 2 Chapter 1 1.1.3-6

Correction	Present	Note
6 Unscheduled Surveys The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to **1.4-3** of the ~~**CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**~~**Conditions of Service for Classification of Ships and Registration of Installations**.	**6** Unscheduled Surveys The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.	Wording correction

Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.1-9

Correction	Present	Note
9 In general, *BWMS* monitoring functions of *BWMS* belong to system category I when applying ~~**Annex D18.1.1,**~~**Part X of the** ~~**Guidance**~~**Rules for the Survey and Construction of Steel Ships**. However, in cases where by-pass valves are integrated into valve remote control systems, such by-pass valves belong to the system category II for ballast transfer remote control systems.	**9** In general, *BWMS* monitoring functions of *BWMS* belong to system category I when applying **Annex D18.1.1, the Guidance for the Survey and Construction of Steel Ships**. However, in cases where by-pass valves are integrated into valve remote control systems, such by-pass valves belong to the system category II for ballast transfer remote control systems.	Reference correction

Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.2-2

Correction	Present	Note
2 For *BWMS* categories 3a, 3b and 3c, the inert gas or nitrogen-product-enriched air from inert gas systems and from protection devices provided for ballast tanks (e.g. P/V valves, P/V breakers or P/V breather valves) is to be discharged to the safe locations on open decks specified in **2.2.1~~.2~~-13(1)** and **(2)**.	**2** For *BWMS* categories 3a, 3b and 3c, the inert gas or nitrogen-product-enriched air from inert gas systems and from protection devices provided for ballast tanks (e.g. P/V valves, P/V breakers or P/V breather valves) is to be discharged to the safe locations on open decks specified in **2.1.2-13(1)** and **(2)**.	Reference correction

Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.3-8

Correction	Present	Note
8 When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with **D14.3.2,** Part D of **the Guidance for the Survey and Construction of Steel Ships**, the fore peak tank ballast water is to be processed by the same *BWMS* processing the ballast water of the other ballast tanks within the cargo area.	**8** When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with **D14.3.2, the Guidance for the Survey and Construction of Steel Ships**, the fore peak tank ballast water is to be processed by the same *BWMS* processing the ballast water of the other ballast tanks within the cargo area.	Wording correction

Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.3-12

Correction	Present	Note
12 When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with **D14.3.2,** Part D of **the Guidance for the Survey and Construction of Steel Ships**, the appropriate isolation arrangements described in **-9** and **-10** above are not required between fore peak tanks and common ballast water piping serving the other ballast tanks within the cargo area.	**12** When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with **D14.3.2, the Guidance for the Survey and Construction of Steel Ships**, the appropriate isolation arrangements described in **-9** and **-10** above are not required between fore peak tanks and common ballast water piping serving the other ballast tanks within the cargo area.	Wording correction

Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.4-1(3)

Correction	Present	Note
(3) Ozone sensors (a) For *BWMS* categories 7a and 7b, at least one ozone sensor is to be provided in the vicinity of discharge outlets to open decks from the ozone destructors specified in **2.~~21~~2.1-13(7)** and **(8)** to alarms when ozone concentration levels rise above 0.1 *ppm*. In such cases, audible and visual alarms are to be activated in *BWMS* control rooms. (b) In addition to the ozone sensors described in **(1)** above, at least two ozone sensors are to be positioned at appropriate spaces in the following **i)** to **iii)** spaces. i) Spaces where ozone generators are fitted ii) Spaces where ozone destructors are fitted iii) Spaces where ozone piping is routed (c) Audible and visual alarms are to be activated at the following **i)** to **iii)** locations when the ozone concentration levels of the ozone sensors described in **(b)** above rises above 0.1 *ppm*. i) Inside the space ii) At the entrance to the space iii) Inside the *BWMS* control station (d) Automatic *BWMS* shut-down is to be arranged so as to activate when the ozone concentration measured from one of the two sensors described in **(b)** above inside the space rises above 0.2 *ppm*.	(3) Ozone sensors (a) For *BWMS* categories 7a and 7b, at least one ozone sensor is to be provided in the vicinity of discharge outlets to open decks from the ozone destructors specified in **2.21-13(7)** and **(8)** to alarms when ozone concentration levels rise above 0.1 *ppm*. In such cases, audible and visual alarms are to be activated in *BWMS* control rooms. (b) In addition to the ozone sensors described in **(1) above**, at least two ozone sensors are to be positioned at appropriate spaces in the following **i)** to **iii) spaces**. i) Spaces where ozone generators are fitted ii) Spaces where ozone destructors are fitted iii) Spaces where ozone piping is routed (c) Audible and visual alarms are to be activated at the following **i)** to **iii)** locations when the ozone concentration levels of the ozone sensors described in **(b) above** rises above 0.1 *ppm*. i) Inside the space ii) At the entrance to the space iii) Inside the *BWMS* control station (d) Automatic *BWMS* shut-down is to be arranged so as to activate when the ozone concentration measured from one of the two sensors described in **(b) above** inside the space rises above 0.2 *ppm*.	Reference correction

Rules for Ballast Water Management Installations Part 4 Chapter 3 3.6.2-2(4)

Correction	Present	Note
(4) Notwithstanding **(1)** above, plastic pipes may be accepted after due assessment of the dangerous gases or dangerous liquids conveyed inside. When plastic pipes are accepted, such pipes are subject to **Annex ~~D12~~12.1.6~~-2,~~, Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships**.	(4) Notwithstanding **(1)** above, plastic pipes may be accepted after due assessment of the dangerous gases or dangerous liquids conveyed inside. When plastic pipes are accepted, such pipes are subject to **Annex D12.1.6-2, the Guidance for the Survey and Construction of Steel Ships**.	Reference correction

Rules for Cargo Refrigerating Installations Chapter 2 2.1.2-2

Correction	Present	Note
2 Registration Maintenance Surveys Refrigerating installations which have been registered are to undergo surveys in accordance with the following intervals to maintain their registrations. (1) Special Surveys are to be carried out at intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (2) Annual Surveys are to be carried out at intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (3) An Occasional Survey: At a time falling on any of **(a)** to **(d)** mentioned below, independently of special surveys and annual surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the installations have been damaged, repaired or renewed. (b) When the installations are modified or altered. (c) When it is considered necessary by the Society that an important part of the installation should be repaired at a time other than date for the special or annual survey. (d) When a survey is needed for a reason other than the above. (4) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to **1.4-3** of the ~~**CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF**~~	**2** Registration Maintenance Surveys Refrigerating installations which have been registered are to undergo surveys in accordance with the following intervals to maintain their registrations. (1) Special Surveys are to be carried out at intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (2) Annual Surveys are to be carried out at intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (3) An Occasional Survey: At a time falling on any of **(a)** to **(d)** mentioned below, independently of special surveys and annual surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the installations have been damaged, repaired or renewed. (b) When the installations are modified or altered. (c) When it is considered necessary by the Society that an important part of the installation should be repaired at a time other than date for the special or annual survey. (d) When a survey is needed for a reason other than the above. (4) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.	Wording correction

~~**INSTALLATIONS.**~~**Conditions of Service for Classification of Ships and Registration of Installations**.		

Rules for Cargo Refrigerating Installations Chapter 3 3.2.9-2

Correction	Present	Note
2 Pipes and pipe flange couplings are to be in accordance with the requirements for air in **Table** ~~**D 12**~~**D12.10, Chapter 12, Part D of the Rules for the Survey and Construction of Steel Ships**.	**2** Pipes and pipe flange couplings are to be in accordance with the requirements for air in **Table D 12.10**, **Chapter 12, Part D of the Rules for the Survey and Construction of Steel Ships**.	Wording correction

Rules for Diving Systems Chapter 2 2.1.2-2

Correction	Present	Note
2 Registration Maintenance Surveys are to be carried out at the times as prescribed in **(1)** to **(4)** below. (1) Special Surveys are to be carried out at intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (2) Annual Surveys are to be carried out at intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (3) An Occasional Survey: at a time falling on any of **(a)** to **(c)** mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the systems have been damaged, repaired or renewed. (b) When the systems are modified or altered. (c) Whenever considered necessary by the Society. (4) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to ~~**CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.~~**Conditions of Service for Classification of Ships and Registration of Installations**.	**2** Registration Maintenance Surveys are to be carried out at the times as prescribed in **(1)** to **(4)** below. (1) Special Surveys are to be carried out at intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (2) Annual Surveys are to be carried out at intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (3) An Occasional Survey: at a time falling on any of **(a)** to **(c)** mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the systems have been damaged, repaired or renewed. (b) When the systems are modified or altered. (c) Whenever considered necessary by the Society. (4) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.	Wording correction

Rules for Diving Systems Chapter 2 2.2.9

Correction	Present	Note
Performance tests are to be carried out on the followings: (1) The life support system specified in ~~Chapter5~~Chapter 5. (2) The instruments and communication system specified in ~~Chapter6~~Chapter 6. (3) The emergency surfacing arrangement specified in ~~Chapter7~~Chapter 7. (4) The fixed fire-extinguishing system, the fire detection and alarm system and the water spray system specified in **9.2**. (5) The communication system specified in **6.2.1**. (6) The emergency locating device specified in **6.2.2**.	Performance tests are to be carried out on the followings: (1) The life support system specified in **Chapter5**. (2) The instruments and communication system specified in **Chapter6**. (3) The emergency surfacing arrangement specified in **Chapter7**. (4) The fixed fire-extinguishing system, the fire detection and alarm system and the water spray system specified in **9.2**. (5) The communication system specified in **6.2.1**. (6) The emergency locating device specified in **6.2.2**.	Wording correction

Rules for Diving Systems Chapter 2 2.3.1-1

Correction	Present	Note
1 At each Special Survey for the diving systems, the following surveys are to be carried out to the satisfaction of the Surveyor: (1) Inspection of the actual condition of the pressure hull of the diving bell (including its view ports and covers). (2) Inspection of the actual condition of the shell structure of the deck decompression chamber and its windows, covers and doors. (3) Inspection of the actual condition of the handling system and the breathing gas supply system for pressurizing and decompressing. (4) Inspection of the actual condition of the electrical installation, the piping systems, etc. (5) Inspection resistance test of the electrical installations. (6) Overhaul inspection of the watertight or airtight packings at the penetrating parts of pipes, shafts, cable connectors, etc. through the diving bell or the deck decompression chamber. (7) Upon removal of view ports, covers and penetrating pieces of the diving bell and the piping systems installed outside the diving bell, hydrostatic tests specified in **2.2.3-1(3)**, **-3(1)** and **(2)** (only for the hyperbaric diving bell) and **2.2.7(2)**. Where, however, it is difficult to carry out these tests, the tests may be substituted by any other tests and inspections subject to the approval by the Society. (8) Upon removal by a cable penetrating parts through the diving bell, hydrostatic tests by a method approved by the Society. Where, however, it is difficult to carry out hydrostatic tests, the tests may	**1** At each Special Survey for the diving systems, the following surveys are to be carried out to the satisfaction of the Surveyor: (1) Inspection of the actual condition of the pressure hull of the diving bell (including its view ports and covers). (2) Inspection of the actual condition of the shell structure of the deck decompression chamber and its windows, covers and doors. (3) Inspection of the actual condition of the handling system and the breathing gas supply system for pressurizing and decompressing. (4) Inspection of the actual condition of the electrical installation, the piping systems, etc. (5) Inspection resistance test of the electrical installations. (6) Overhaul inspection of the watertight or airtight packings at the penetrating parts of pipes, shafts, cable connectors, etc. through the diving bell or the deck decompression chamber. (7) Upon removal of view ports, covers and penetrating pieces of the diving bell and the piping systems installed outside the diving bell, hydrostatic tests specified in **2.2.3-1(3)**, **-3(1)** and **(2)** (only for the hyperbaric diving bell) and **2.2.7(2)**. Where, however, it is difficult to carry out these tests, the tests may be substituted by any other tests and inspections subject to the approval by the Society. (8) Upon removal by a cable penetrating parts through the diving bell, hydrostatic tests by a method approved by the Society. Where, however, it is difficult to carry out hydrostatic tests, the tests may	Wording correction

be substituted by any other tests and inspections subject to the approval by the Society. (9) Pressure tests of piping required by the Surveyor, where deemed necessary. (10) Measurement of the plate thickness of the pressure hull of the diving bell and the shell structure of the deck decompression chamber, where deemed necessary. (11) Performance tests of the followings: (a) The life support system specified in ~~**Chapter5**~~**Chapter 5** (b) The instruments and the communication system specified in ~~**Chapter6**~~**Chapter 6** (c) The lighting arrangement (d) The electric power receiving system specified in **8.5.5** (e) The emergency surfacing arrangement specified in ~~**Chapter7**~~**Chapter 7** (f) The fire detection and alarm system specified in **9.2.2** (g) The communication system specified in **6.2.1** (h) The emergency locating device specified in **6.2.2** (12) Diving test to the maximum diving depth or external pressure test equivalent thereto. (13) Performance tests of the fixed fire-extinguishing system and the water spray system specified in **9.2**. (14) Any other inspections deemed necessary by the Society.	be substituted by any other tests and inspections subject to the approval by the Society. (9) Pressure tests of piping required by the Surveyor, where deemed necessary. (10) Measurement of the plate thickness of the pressure hull of the diving bell and the shell structure of the deck decompression chamber, where deemed necessary. (11) Performance tests of the followings: (a) The life support system specified in **Chapter5** (b) The instruments and the communication system specified in **Chapter6** (c) The lighting arrangement (d) The electric power receiving system specified in **8.5.5** (e) The emergency surfacing arrangement specified in **Chapter7** (f) The fire detection and alarm system specified in **9.2.2** (g) The communication system specified in **6.2.1** (h) The emergency locating device specified in **6.2.2** (12) Diving test to the maximum diving depth or external pressure test equivalent thereto. (13) Performance tests of the fixed fire-extinguishing system and the water spray system specified in **9.2**. (14) Any other inspections deemed necessary by the Society.	

Rules for Automatic and Remote Control Systems Chapter 2 2.1.2

Correction	Present	Note
Surveys are to be carried out in accordance with the following requirements given in **(1)** and **(2)**: (1) Registration Surveys are to be carried out at the time of application for registration. (2) Registration Maintenance Surveys are to be carried out at those times as prescribed in **(a)** to **(d)** below. (a) Special Surveys are to be carried out at those intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (b) Annual Surveys are to be carried out at those intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (c) Occasional Surveys: at a time falling on any of **i)** to **iii)** mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. i) In cases where any main parts of systems have been damaged, repaired or renewed. ii) In cases where any systems are modified or altered. iii) In cases where considered necessary by the Society. (d) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3** of the ~~**CONDITIONS OF**~~	Surveys are to be carried out in accordance with the following requirements given in **(1)** and **(2)**: (1) Registration Surveys are to be carried out at the time of application for registration. (2) Registration Maintenance Surveys are to be carried out at those times as prescribed in **(a)** to **(d)** below. (a) Special Surveys are to be carried out at those intervals specified in **1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships**. (b) Annual Surveys are to be carried out at those intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (c) Occasional Surveys: at a time falling on any of **i)** to **iii)** mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. i) In cases where any main parts of systems have been damaged, repaired or renewed. ii) In cases where any systems are modified or altered. iii) In cases where considered necessary by the Society. (d) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3** of the **CONDITIONS OF**	Wording correction

~~SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS.~~Conditions of Service for Classification of Ships and Registration of Installations.	**SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS.**	

Rules for Integrated Fire Control Systems Chapter 2 2.1.2

Correction	Present	Note
The timing of Registration Surveys and the intervals for Registration Maintenance Surveys are as in the following **(1)** and **(2)**. Surveys, as a rule, are to be carried out at the same time as Classification Surveys. (1) Registration Surveys are to be carried out at the time of application for registration. (2) Registration Maintenance Surveys are to be carried out at the following intervals: (a) Special Surveys are to be carried out at those intervals specified in **1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships**. (b) Intermediate Surveys are to be carried out at those intervals specified in **1.1.3-1(2), Part B of the Rules for the Survey and Construction of Steel Ships**. (c) Annual Surveys are to be carried out at those intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (d) Notwithstanding **(a)** to **(c)** above, Occasional Surveys are to be carried out independently of Special Surveys, Intermediate Surveys and Annual Surveys in cases. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve the survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys. i) Any main parts of systems have been damaged, repaired or renewed.	The timing of Registration Surveys and the intervals for Registration Maintenance Surveys are as in the following **(1)** and **(2)**. Surveys, as a rule, are to be carried out at the same time as Classification Surveys. (1) Registration Surveys are to be carried out at the time of application for registration. (2) Registration Maintenance Surveys are to be carried out at the following intervals: (a) Special Surveys are to be carried out at those intervals specified in **1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships**. (b) Intermediate Surveys are to be carried out at those intervals specified in **1.1.3-1(2), Part B of the Rules for the Survey and Construction of Steel Ships**. (c) Annual Surveys are to be carried out at those intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**. (d) Notwithstanding **(a)** to **(c)** above, Occasional Surveys are to be carried out independently of Special Surveys, Intermediate Surveys and Annual Surveys in cases. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve the survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys. i) Any main parts of systems have been damaged, repaired or renewed.	Reference correction

ii) Any systems are modified or altered. iii) Any time considered necessary by the Society. (e) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3**~~ of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.~~**, Conditions of Service for Classification of Ships and Registration of Installations**.	ii) Any systems are modified or altered. iii) Any time considered necessary by the Society. (e) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.	

Rules for High Speed Craft Part 2 Chapter 2 2.1.2-6

Correction	Present	Note
6 For crafts using low-flashpoint fuels, the operational procedures and emergency procedures specified in **17.2.2-3** and **17.2.2-4** ~~of 17.2.2~~**, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	**6** For crafts using low-flashpoint fuels, the operational procedures and emergency procedures specified in **-3** and **-4** of **17.2.2, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	Wording correction

Rules for High Speed Craft Part 2 Chapter 2 2.2.1-4

Correction	Present	Note
4 For crafts using low-flashpoint fuels, the operational procedures and emergency procedures stipulated in **17.2.2-3** and **17.2.2-4** ~~of 17.2.2~~**, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	**4** For crafts using low-flashpoint fuels, the operational procedures and emergency procedures stipulated in **-3** and **-4** of **17.2.2, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	Wording correction

Rules for High Speed Craft Part 6 Chapter 1 1.8.5

Correction	Present	Note
The sectional area of pillars is not to be less than the value derived from the following formula. $\frac{21.54w}{\sigma_y - \frac{253.3}{E}\sigma_y^2\left(\frac{l}{k_0}\right)^2}$ (cm^2) w : Deck load supported by pillars and is determined by provisions given in **2.7, Part 5**. (kN) σ_y : Yield strength or proof stress of the material used. (N/mm^2) l : Distance from the lower end of pillar to the lower side of beam or deck girder supported by the pillar. (m) (See **Fig. 5.2.4, Part 5**) k_0 : Minimum radius of gyration of the cross section of pillars. (cm) E : Elasticity constant of the material used. (N/mm^2)	The sectional area of pillars is not to be less than the value derived from the following formula. $\frac{21.54w}{\sigma_y - \frac{253.3}{E}\sigma_y^2\left(\frac{l}{k_0}\right)^2}$ (cm^2) w : Deck load supported by pillars and is determined by provisions given in **2.7, Part 5**. (kN) σ_y : Yield strength or proof stress of the material used. (N/mm^2) l : Distance from the lower end of pillar to the lower side of beam or deck girder supported by the pillar. (m) (See **Fig. 5.2.4**) k_0 : Minimum radius of gyration of the cross section of pillars. (cm) E : Elasticity constant of the material used. (N/mm^2)	Wording correction

Rules for the Survey and Construction of Passenger Ships Part 1 Chapter 1 1.1.5

Correction	Present	Note
Notwithstanding the requirements of the Rules, high speed crafts specified in **2.1.2, Part 1 of the Rules for ~~the~~ High Speed Craft** and moored floating units specified in **1.2.3(4), Part P of the Rules for the Survey and Construction of Steel Ships** are to be in accordance with the requirements of the **Rules for ~~the~~ High Speed Craft** and **Part P of the Rules for the Survey and Construction of Steel Ships** respectively.	Notwithstanding the requirements of the Rules, high speed crafts specified in **2.1.2, Part 1 of the Rules for the High Speed Craft** and moored floating units specified in **1.2.3(4), Part P of the Rules for the Survey and Construction of Steel Ships** are to be in accordance with the requirements of the **Rules for the High Speed Craft** and **Part P of the Rules for the Survey and Construction of Steel Ships** respectively.	Wording correction

Rules for the Survey and Construction of Passenger Ships Part 1 Chapter 1 1.2.5

Correction	Present	Note
1 For polar class ships in accordance with the provisions of **Chapter 1**, **Part I of the Rules for the Survey and Construction of Steel Ships**, by the provisions of **1.1.1-6, Part 3**, the following notation corresponding to the classification of ice strengthening specified in **1.2.2, Annex 1**~~,~~ **of Part I of the Rules for the Survey and Construction of Steel Ships**, is affixed to the Classification Characters. (1) *PC1*: *Polar Class 1* (abbreviated to *PC1*) (2) *PC2*: *Polar Class 2* (abbreviated to *PC2*) (3) *PC3*: *Polar Class 3* (abbreviated to *PC3*) (4) *PC4*: *Polar Class 4* (abbreviated to *PC4*) (5) *PC5*: *Polar Class 5* (abbreviated to *PC5*) (6) *PC6*: *Polar Class 6* (abbreviated to *PC6*) (7) *PC7*: *Polar Class 7* (abbreviated to *PC7*)	**1** For polar class ships in accordance with the provisions of **Chapter 1**, **Part I of the Rules for the Survey and Construction of Steel Ships**, by the provisions of **1.1.1-6, Part 3**, the following notation corresponding to the classification of ice strengthening specified in **1.2.2**, **Annex 1**, **Part I of the Rules for the Survey and Construction of Steel Ships**, is affixed to the Classification Characters. (1) *PC1*: *Polar Class 1* (abbreviated to *PC1*) (2) *PC2*: *Polar Class 2* (abbreviated to *PC2*) (3) *PC3*: *Polar Class 3* (abbreviated to *PC3*) (4) *PC4*: *Polar Class 4* (abbreviated to *PC4*) (5) *PC5*: *Polar Class 5* (abbreviated to *PC5*) (6) *PC6*: *Polar Class 6* (abbreviated to *PC6*) (7) *PC7*: *Polar Class 7* (abbreviated to *PC7*)	Wording correction

Rules for the Survey and Construction of Passenger Ships Part 2 Chapter 1 1.1.7-3

Correction	Present	Note
3 If the survey to be carried out under the requirements of **-2(2)** above is a Special Survey, either the overdue Special Survey or the next due Special Survey is to be carried out. In such cases, the validity of the Classification Certificate is to be in accordance with the requirements of **~~2.~~4.~~2-~~1.3-4, Guidance for the Classification and Registry of Ships** corresponding to the Special Survey to be carried out.	**3** If the survey to be carried out under the requirements of **-2(2)** above is a Special Survey, either the overdue Special Survey or the next due Special Survey is to be carried out. In such cases, the validity of the Classification Certificate is to be in accordance with the requirements of **2.4.2-3, Guidance for the Classification and Registry of Ships** corresponding to the Special Survey to be carried out.	Reference correction

Rules for the Survey and Construction of Passenger Ships Part 2 Chapter 2 2.1.2-4

Correction	Present	Note
4 For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in ~~**-3** and **-4** of **17.2.2**~~**17.2.2-3** and **17.2.2-4, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	**4** For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **-3** and **-4** of **17.2.2, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	Wording correction

Rules for the Survey and Construction of Passenger Ships Part 3 Chapter 7 7.3.1-4

Correction	Present	Note
4 Air pipes terminating within a superstructure which are not fitted with watertight means of closure are to be considered as unprotected openings when applying **2.3.~~4~~6-6, Part 4**.	**4** Air pipes terminating within a superstructure which are not fitted with watertight means of closure are to be considered as unprotected openings when applying **2.3.4-6, Part 4**.	Reference correction

Rules for the Survey and Construction of Passenger Ships Part 5 Chapter 1 1.1.1-4

Correction	Present	Note
4 In cases where plastic pipes (including vinyl pipes) are used when applying **Chapter 12, Part D of Rules for the Survey and Construction of Steel Ships** in accordance with **-1(3)**, the following **(1)** to **(3)** are to be complied with:	**4** In cases where plastic pipes (including vinyl pipes) are used when applying **Chapter 12, Part D of Rules for the Survey and Construction of Steel Ships** in accordance with **-1(3)**, the following **(1)** to **(3)** are to be complied with:	Reference correction
(1) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the requirements regarding external pressures specified in **1.4.1-2(2~~) of the Annex~~), Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** are to be applied to any pipe installation required to remain operational in the case of flooding damage in accordance with **2.5.1, Part 4 of the Rules**.	(1) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the requirements regarding external pressures specified in **1.4.1-2(2) of the Annex** are to be applied to any pipe installation required to remain operational in the case of flooding damage in accordance with **2.5.1, Part 4 of the Rules**.	
(2) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the requirements regarding fire endurance specified in **1.5.1-1~~ of the Annex~~, Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** are to be applied to any pipe installation used for Safe Return to Port purposes (*SOLAS* II-2, Reg.21.4). Such installations can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard.	(2) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the requirements regarding fire endurance specified in **1.5.1-1 of the Annex** are to be applied to any pipe installation used for Safe Return to Port purposes (*SOLAS* II-2, Reg.21.4). Such installations can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard.	
(3) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the following note is added to **Table 1 of the Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and is to be	(3) In applying **12.1.6, Part D of Rules for the Survey and Construction of Steel Ships** and **Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships**, the following note is added to **Table 1 of the Annex** and is to be considered in the application of the table:	

considered in the application of the table: For passenger ships subject to Reg. 21.4 (Safe Return to Port) of *SOLAS* II-2, plastic pipes for services required to remain operative in the part of the ship not affected by the casualty thresholds (such as systems intended to support safe areas) are to be considered essential services. In accordance with MSC Circular *MSC*.1/*Circ*.1369 (interpretation 12), plastic piping can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard for Safe Return to Port purposes.	For passenger ships subject to Reg. 21.4 (Safe Return to Port) of *SOLAS* II-2, plastic pipes for services required to remain operative in the part of the ship not affected by the casualty thresholds (such as systems intended to support safe areas) are to be considered essential services. In accordance with MSC Circular *MSC*.1/*Circ*.1369 (interpretation 12), plastic piping can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard for Safe Return to Port purposes.	

Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.1.2-5

Correction	Present	Note
6 For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **17.2.2-3** and **17.2.2-4**~~ of 17.2.2~~, **Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	**6** For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in **-3** and **-4** of **17.2.2, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	Wording correction

Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.2.1-4

Correction	Present	Note
4 For ships using low-flashpoint fuels, the operational procedures and emergency procedures stipulated in **17.2.2-3** and **17.2.2-4**~~ of 17.2.2~~, **Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	**4** For ships using low-flashpoint fuels, the operational procedures and emergency procedures stipulated in **-3** and **-4** of **17.2.2, Part GF of the Rules for the Survey and Construction of Steel Ships** are to be submitted for Society approval.	Wording correction

Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 5 5.2.5-1

Correction	Present	Note
1 At Special Surveys, thickness measurements are to be carried out in accordance with **(1)** through **(4)** below. (1) Thickness measurements are to be carried out using appropriate ultra-sonic gauging machines or other approved means. The Surveyor may request that the accuracy of the equipment be demonstrated. (2) Thickness measurements are to be carried out within 12 *months* prior to completion of the survey in question under the attendance of the Surveyor by the firm approved by the Society under the "**Rules for Approval of ~~Manufactures~~Manufacturers and Service Suppliers**" or equivalent firm. The surveyor may request to have the measurements taken again to ensure acceptable accuracy. (3) Additional thickness measurements are to be carried out before the completion of the survey. (4) A thickness measurement record is to be prepared and submitted to the Society.	**1** At Special Surveys, thickness measurements are to be carried out in accordance with **(1)** through **(4)** below. (1) Thickness measurements are to be carried out using appropriate ultra-sonic gauging machines or other approved means. The Surveyor may request that the accuracy of the equipment be demonstrated. (2) Thickness measurements are to be carried out within 12 *months* prior to completion of the survey in question under the attendance of the Surveyor by the firm approved by the Society under the "**Rules for Approval of Manufactures and Service Suppliers**" or equivalent firm. The surveyor may request to have the measurements taken again to ensure acceptable accuracy. (3) Additional thickness measurements are to be carried out before the completion of the survey. (4) A thickness measurement record is to be prepared and submitted to the Society.	Wording correction

Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 8 Table 2.8.1-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">
Table 2.8.1-1 Approval Procedure of Preventive Maintenance System for Oil Lubricated Propeller Shafts (<i>PSCM</i>)
<table>
<tr><th>Item</th><th>Procedures</th></tr>
<tr><td>1 General</td><td>(1) These procedures will apply to ships intended for the preventative maintenance of propeller shafts. This system permits the shipowners to maintain the shafts using preventive measures such as by carrying out lubricating oil analysis regularly and diagnosing the lubricating condition of the shaft based on the results.</td></tr>
<tr><td>2 Application</td><td>(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).
(a) Management’s policy for implementing the preventive maintenance system
(b) Procedures and personnel responsible for sampling oil, monitoring parameters such as oil analysis results and recording the necessary data
(c) Procedures and personnel responsible for selecting and controlling the analytical testing machines (or testing laboratory) and the measuring devices for monitoring parameters
(d) Procedures and personnel responsible for review of each parameter monitored and diagnosing the lubricating condition thereby
(e) Procedures and personnel responsible for handling any abnormalities found (including those for reporting to the Society)
(f) Procedures and personnel responsible for ensuring that proper maintenance is carried out according to the maintenance manual
(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 <i>months</i> from the date of completion of the Classification Survey or the previous Ordinary Survey of the propeller shaft. However, this 6 <i>months</i> period may be waived in cases where supplementary documentation confirming the soundness of the propeller shafting system is submitted.</td></tr>
<tr><td>3 Approval and Notation</td><td>(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) of oil analysis results. The Society assigns approved ships with the notation <i>PSCM</i> as classification characters.</td></tr>
</table>
</td><td>Wording correction</td></tr>
</table>

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 familiarize the crew concerned with the procedures.
  - (b) Management is to verify that parameters such as oil analysis results are all within their limits and to take suitable measures as necessary. 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) Oil sampling for analytical testing is to be carried out regularly at the intervals of at least 6 *months* and the procedures are in accordance with the following.
    - i) Sampling is to be carried out at sea as much as possible. The sampling oil quantity is about 200 *ml* and it is to be always from a fixed place after fully draining. For example, the air purge pipe at the pump exit or oil sample cock; places where the sampled oil can be representative of the system.
    - ii) Where the sampling can only be conducted at port, the sampling is to be carried out after sufficient circulation of the oil with an oil pump if one is available, and according to the method in **i)** above. Otherwise, the oil is to be sampled from a few points at different levels and all the samples are mixed together as the testing sample.
  - (b) Monitoring and recording of each parameter is to be properly carried out and the following data is to be recorded at each sampling.
    - i) Temperature of the circulation oil
    - ii) Temperature of the aft stern tube bearing
    - iii) Sampling date, service oil name, service hours, total oil quantity and oil consumption rate (*l/day*)
  - (c) The testing machines and measuring devices for monitoring the parameters are to have their accuracy

(3) Criteria for parameters

Management is to determine the criteria for each parameter for the ship based on the reference standards below and by taking into account its experience and knowledge.
  - (a) Analytical items and methods:
    - i) Analytical items and methods: Refer to **Table 1** as a standard. However, alternative analytical items and methods can be adopted instead when deemed appropriate by the Society.
    - ii) Standard criteria: To be within the max. values specified in **Table 1** counting from the values of the new oil
    - iii) Alarm values: To be less than double the standard criteria (where any parameter exceeds the alarm value, the testing oil is to be re-sampled and re-analysis for all the items is to be carried out immediately)
  - (b) Lubricating oil consumption rate: 2 *l/day* or less
  - (c) Temperature at aft. stern tube bearing: 55°C or less
  - (d) Wear down for oil lubricated bearing: 0.3 *mm* or less

Table 1 Standard criteria (Reference)

analytical items	max. values	analytical methods

<table>
<tr><td></td><td>Fe (*ppm*)</td><td>50</td><td>ICP (SOAP)</td></tr>
<tr><td></td><td>Sn (*ppm*)</td><td>20</td><td>ICP (SOAP)</td></tr>
<tr><td></td><td>Pb (*ppm*)</td><td>20</td><td>ICP (SOAP)</td></tr>
<tr><td></td><td>Na (*ppm*)</td><td>80</td><td>ICP (SOAP)</td></tr>
<tr><td></td><td>IR Oxidation @ 5.85 *μm* (Abs. *unit/cm*)</td><td>10</td><td>FT-IR</td></tr>
<tr><td></td><td>Separated Water (%)</td><td>1.0</td><td>Visual (24 settling hours)</td></tr>
<tr><td>5 After Approval</td><td colspan="3">(1) The parameters at least following **(a)** to **(e)** are to be monitored and recorded onboard the ship in accordance with the approved manual, and the lubricating condition of the propeller shafts is to be diagnosed thereby.
(a) Lubricating oil sampling and analysis is to be carried out regularly at intervals not exceeding 6 *months*, with at least the following **i)** to **iv)** being analyzed each time:
i) water content;
ii) salinity (sodium);
iii) content of shaft metal and bearing metal particles; and
iv) oxidation of oil.
(b) The monthly onboard checking of lubricating oil water content.
(c) Lubricating oil consumption rate
(d) Bearing temperature*1
(e) Weardown of the propeller shaft at the stern tube bearing
(2) Where any abnormality is found, management is to report it to the Society as soon as possible and withdraw the shaft for a thorough examination or carry out maintenance to the shaft as necessary.
(3) Management is to maintain onboard records of the analysis data in **4.(2)(b)** above after every analysis of the sample oil. In the documents, management's opinion, such as on the necessity for withdrawing the shaft, is to be included.
(4) The Society will carry out general examinations on the related shafting parts and review each record of parameters monitored at the ship's periodical surveys to verify that appropriate maintenance is carried out in compliance with the approved manual, and notify the ship's management of any necessary maintenance. Where any abnormality or improper maintenance is found out through the examination, management is required to apply for an Ordinary Survey of the shaft.</td></tr>
<tr><td>6 Cancellation of Approval</td><td colspan="3">(1) Where 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 be carried out Ordinary Survey immediately in accordance with **Table ~~B2~~2.8.3**.
(a) Where any improper conduct is found regarding entries in the records such as those for oil analysis results.
(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.</td></tr>
</table>

Notes

*1: 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. In such cases, the instruments specified in **(1)** or **(2)** are used, the data and the result of the analysis are to be evaluated prior to 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 for the Survey and Construction of Steel Ships** 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 thruster 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 for the Survey and Construction of Steel Ships** 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.

Rules for the Survey and Construction of Inland Waterway Ships Part 5 Chapter 14 14.1.2

Correction	Present	Note
Notwithstanding the provisions in **14.1.1-1** to **14.1.1-3** ~~of **14.1.1**~~, for the unmanned barges the following requirements are applied: (1) The number of anchors may be one of the unit weight in **Table 5.14.1**. (2) The length of chain cables may be half of length in **Table 5.14.1**. (3) Except where specified in **(1)** and **(2)**, the **Table 5.14.1**, and **Table 5.14.2** or **14.1.5** is applied.	Notwithstanding the provisions in **-1** to **-3** of **14.1.1**, for the unmanned barges the following requirements are applied: (1) The number of anchors may be one of the unit weight in **Table 5.14.1**. (2) The length of chain cables may be half of length in **Table 5.14.1**. (3) Except where specified in **(1)** and **(2)**, the **Table 5.14.1**, and **Table 5.14.2** or **14.1.5** is applied.	Wording correction

Rules for the Survey and Construction of Inland Waterway Ships Chapter 1 1.2.9-2

Correction	Present	Note
2 In an *FRP* ships having a discontinuous exposed deck (e.g. a stepped freeboard deck), the freeboard deck is to be determined as follows. (1) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of 1 *m* in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck. (2) Where a recess in the freeboard deck does not extend to the sides of the ship or is not in excess of 1 *m* in length, the upper part of the deck is taken as the freeboard deck. (3) Recesses not extending from side to side in the deck designated as the freeboard deck in accordance with the provisions of ~~-3~~**2.1.15-3, Chapter 2, Part A of the Rules for the Survey and Construction of Steel Ships** below the exposed deck may be disregarded, provided all openings in the exposed deck are fitted with weathertight closing appliances.	**2** In an *FRP* ships having a discontinuous exposed deck (e.g. a stepped freeboard deck), the freeboard deck is to be determined as follows. (1) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of 1 *m* in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck. (2) Where a recess in the freeboard deck does not extend to the sides of the ship or is not in excess of 1 *m* in length, the upper part of the deck is taken as the freeboard deck. (3) Recesses not extending from side to side in the deck designated as the freeboard deck in accordance with the provisions of **-3** below the exposed deck may be disregarded, provided all openings in the exposed deck are fitted with weathertight closing appliances.	Reference correction

Rules for the Survey and Construction of Inland Waterway Ships Chapter 20 20.1.1-1

Correction	Present	Note
1 Load lines of *FRP* Ships, L_f of which is 24 *m* and over are to be in accordance with the requirements in **Part V~~,~~ of the Rules for the Survey and Construction of Steel Ships**.	**1** Load lines of *FRP* Ships, L_f of which is 24 *m* and over are to be in accordance with the requirements in **Part V, the Rules for the Survey and Construction of Steel Ships**.	Wording correction

Guidance for the Audit and Registration of Ship Security Management Systems Part 3 Chapter 3 3.6

Correction	Present	Note
For the commencement of lay-up, the ship owner is required to submit the following documents to the nearest Society's local office. However, the document specified in **(1)** has been submitted under the provisions of **B1.1.8, Part B, Guidance for the Survey and Construction of Steel Ships** or **5.5, Guidance for the Audit and Registration of ~~Ship~~Safety Management Systems**, the submission of the document specified **(1)** is not required. (1) Application for the Ship Laid-up (2) A copy of the Certificate of acceptance of lay-up written by the Authority	For the commencement of lay-up, the ship owner is required to submit the following documents to the nearest Society's local office. However, the document specified in **(1)** has been submitted under the provisions of **B1.1.8, Part B, Guidance for the Survey and Construction of Steel Ships** or **5.5, Guidance for the Audit and Registration of Ship Management Systems**, the submission of the document specified **(1)** is not required. (1) Application for the Ship Laid-up (2) A copy of the Certificate of acceptance of lay-up written by the Authority	Wording correction

Guidance for the survey and construction of steel ships Part A A2 A2.1.15-1

Correction	Present	Note
1 “Adequate width” specified in **2.1.15-3, Part A of the Rules** is to be determined by taking into account the ship’s construction, and operation, and at the minimum, is to accommodate the passages specified in ~~**23.7**~~**14.13, Part C of the Rules**.	**1** “Adequate width” specified in **2.1.15-3, Part A of the Rules** is to be determined by taking into account the ship’s construction, and operation, and at the minimum, is to accommodate the passages specified in **23.7, Part C of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part B B1 B1.1.3-3

Correction	Present	Note
3 The Occasional Surveys specified in **1.1.3-3(5), Part B of the Rules** are as specified below: (1) Fire-extinguishing mediums and deep-fat cooking equipment New installations of fire-extinguishing mediums and deep-fat cooking equipment on or after 1 July 2002 are to comply with the requirements of **10.4.1-3** or **10.6.3, Part R of the Rules**, as applicable. Deep-fat cooking equipment is to be confirmed at the time of the installation. (2) Cargo hoses For cargo hoses installed on board ships carrying liquefied gases in bulk and ships carrying dangerous chemicals in bulk on or after 1 July 2002, a survey is to be carried out to verify compliance with the requirements of **5.11.7, Part N of the Rules** or **5.7.3, Part S of the Rules**, as applicable, at the time of the installation. (3) For ice class ships with I*A Super* and I*A* defined in **1.2.5-2, Part A of the Rules**, which had been at the beginning stage of construction before 1 September 2003, a survey is to be carried out to verify compliance with the requirements of **8.4.2-2, Part I of the Rules** by 1 January in the year 20 *years* since the year the ship was delivered. (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_C) 100 *m* or more (where, L_C is the length of ship specified in	**3** The Occasional Surveys specified in **1.1.3-3(5), Part B of the Rules** are as specified below: (1) Fire-extinguishing mediums and deep-fat cooking equipment New installations of fire-extinguishing mediums and deep-fat cooking equipment on or after 1 July 2002 are to comply with the requirements of **10.4.1-3** or **10.6.3, Part R of the Rules**, as applicable. Deep-fat cooking equipment is to be confirmed at the time of the installation. (2) Cargo hoses For cargo hoses installed on board ships carrying liquefied gases in bulk and ships carrying dangerous chemicals in bulk on or after 1 July 2002, a survey is to be carried out to verify compliance with the requirements of **5.11.7, Part N of the Rules** or **5.7.3, Part S of the Rules**, as applicable, at the time of the installation. (3) For ice class ships with I*A Super* and I*A* defined in **1.2.5-2, Part A of the Rules**, which had been at the beginning stage of construction before 1 September 2003, a survey is to be carried out to verify compliance with the requirements of **8.4.2-2, Part I of the Rules** by 1 January in the year 20 *years* since the year the ship was delivered. (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_C) 100 *m* or more (where, L_C is the length of ship specified in	Wording correction

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) Requirements (i) **20.2.10, Part C of the Rules** applies to hatches on the exposed deck giving access to spaces forward of the collision bulkhead that also extend aft over this line. (ii) **23.6.8, Part C of the Rules** applies to ventilator pipes and their closing devices on the exposed deck serving spaces forward of the collision bulkhead that also extend aft over this line. (iii) **13.6.5, Part D of the Rules** applies to air pipes and their closing devices on the exposed deck serving spaces forward of the collision bulkhead that also extend aft over this line. (b) Implementation scheme (i) For ships which will be 15 *years* of age or more on 1 January 2004: by the due date of the first intermediate or special survey after that date (ii) For ships which will be 10 *years* of age or more but less than 15 *years* of age on 1 January 2004: by the due date of the first special survey after that date (iii) For ships which will be less than 10 *years* of age on 1 January 2004: by the date on which the ship reaches 10 *years* of age (Where the due date of the first intermediate or special survey is not until after the ship reaches 10	**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) Requirements **(i)** **20.2.10, Part C of the Rules** applies to hatches on the exposed deck giving access to spaces forward of the collision bulkhead that also extend aft over this line. **(ii)** **23.6.8, Part C of the Rules** applies to ventilator pipes and their closing devices on the exposed deck serving spaces forward of the collision bulkhead that also extend aft over this line. (iii) **13.6.5, Part D of the Rules** applies to air pipes and their closing devices on the exposed deck serving spaces forward of the collision bulkhead that also extend aft over this line. (b) Implementation scheme (i) For ships which will be 15 *years* of age or more on 1 January 2004: by the due date of the first intermediate or special survey after that date (ii) For ships which will be 10 *years* of age or more but less than 15 *years* of age on 1 January 2004: by the due date of the first special survey after that date (iii) For ships which will be less than 10 *years* of age on 1 January 2004: by the date on which the ship reaches 10 *years* of age (Where the due date of the first intermediate or special survey is not until after the ship reaches 10	

years of age, then the due date of the first intermediate or special survey) (5) (Deleted) (6) Secondary means of pressure/vacuum relief for controlled tank venting system for small chemical tanker For ships carrying dangerous chemicals in bulk of less than 500 *gross tonnage* which had been at the beginning stage of construction before 1 July 2002, a survey is to be carried out to verify compliance with the requirements of **8.2.3, Part S of the Rules** by the date of 1 January 2007. (7) With respect to the provisions of **8.1.2-3, Part I of the Rules**, ships built before 1 July 2007 and whose summer load line is located at a higher level than the *UIWL*, are to be provided with a warning triangle and with an ice class draught mark at the maximum permissible ice class draught amidships by the date of the first scheduled dry docking after 1 July 2007. In such cases, the engine output and the maximum and minimum ice class draught fore, amidships and aft are to be indicated in the classification certificate. (8) Safety practice of fixed carbon dioxide fire-extinguishing systems For fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms installed on ships which had been at the beginning stage of construction before 1 October 1994, a survey is to be carried out to verify compliance with the requirements of **25.2.2-2(1)** and **(2), Part R of the Rules** by the date of the first scheduled dry-docking after 1 January 2010. (9) Emergency towing procedures For cargo ships not less than 500 *gross tonnage*	*years* of age, then the due date of the first intermediate or special survey) (5) (Deleted) (6) Secondary means of pressure/vacuum relief for controlled tank venting system for small chemical tanker For ships carrying dangerous chemicals in bulk of less than 500 *gross tonnage* which had been at the beginning stage of construction before 1 July 2002, a survey is to be carried out to verify compliance with the requirements of **8.2.3, Part S of the Rules** by the date of 1 January 2007. (7) With respect to the provisions of **8.1.2-3, Part I of the Rules**, ships built before 1 July 2007 and whose summer load line is located at a higher level than the *UIWL*, are to be provided with a warning triangle and with an ice class draught mark at the maximum permissible ice class draught amidships by the date of the first scheduled dry docking after 1 July 2007. In such cases, the engine output and the maximum and minimum ice class draught fore, amidships and aft are to be indicated in the classification certificate. (8) Safety practice of fixed carbon dioxide fire-extinguishing systems For fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms installed on ships which had been at the beginning stage of construction before 1 October 1994, a survey is to be carried out to verify compliance with the requirements of **25.2.2-2(1)** and **(2), Part R of the Rules** by the date of the first scheduled dry-docking after 1 January 2010. (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 **14.5.3, Part 1, Part C of the Rules** or **23.3, Part CS of the Rules** are provided. (10) In the case of ships not less than 500 *gross tonnage* engaged on international voyages which had been at the beginning stage of their construction before 1 January 2010 and have closed vehicle and Ro-Ro spaces equipped with fixed water pressure spraying systems, a survey is to be conducted to verify that the measures specified in **20.5.1-5, Part R of the Rules** have been carried out by the first survey after 1 January 2010. (11) Carriage of dangerous goods For cargo ships with cargo spaces intended for the carriage of packaged dangerous goods which are not less than 500 *gross tonnage* and had been at the beginning stage of construction on or after 1 September 1984 but before 1 January 2010 or which are less than 500 *gross tonnage* and had been at the beginning stage of construction on or after 1 February 1992 but before 1 January 2011, a survey is to be carried out to verify compliance with the requirement specified in **19.3, Part R of the Rules** in accordance with **Tables ~~19~~R19.1** and **~~19~~R19.3**, by the first special survey of the ship after 1 January 2011. However, the following provisions may apply: (a) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1986 need not comply with **19.3.3, Part R of the Rules** provided that they comply	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 **14.5.3, Part 1, Part C of the Rules** or **23.3, Part CS of the Rules** are provided. (10) In the case of ships not less than 500 *gross tonnage* engaged on international voyages which had been at the beginning stage of their construction before 1 January 2010 and have closed vehicle and Ro-Ro spaces equipped with fixed water pressure spraying systems, a survey is to be conducted to verify that the measures specified in **20.5.1-5, Part R of the Rules** have been carried out by the first survey after 1 January 2010. (11) Carriage of dangerous goods For cargo ships with cargo spaces intended for the carriage of packaged dangerous goods which are not less than 500 *gross tonnage* and had been at the beginning stage of construction on or after 1 September 1984 but before 1 January 2010 or which are less than 500 *gross tonnage* and had been at the beginning stage of construction on or after 1 February 1992 but before 1 January 2011, a survey is to be carried out to verify compliance with the requirement specified in **19.3, Part R of the Rules** in accordance with **Tables 19.1** and **19.3,** by the first special survey of the ship after 1 January 2011. However, the following provisions may apply: (a) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1986 need not comply with **19.3.3,**	

with the requirements which were in effect when such ships were constructed. (b) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1998 need not comply with **19.3.10-1** and **19.3.10-2, Part R of the Rules**. (c) Cargo ships less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 1998 need not comply with **19.3.10-1** and **19.3.10-2, Part R of the Rules**. (d) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 2002 need not comply with **19.3.3, Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed. (e) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 2002 need not comply with **19.3.1**, **19.3.5**, **19.3.6** and **19.3.9, Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed. (12) Portable instruments for measuring oxygen concentrations For tankers which had been at the beginning stage of construction prior to 1 January 2012, a survey is to be carried out by the first survey on of after 1 January 2012 to verify that the portable instruments for measuring oxygen concentrations specified in	**Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed. (b) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1998 need not comply with **19.3.10-1** and **19.3.10-2, Part R of the Rules**. (c) Cargo ships less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 1998 need not comply with **19.3.10-1** and **19.3.10-2, Part R of the Rules**. (d) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 2002 need not comply with **19.3.3, Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed. (e) Cargo ships not less than 500 *gross tonnage* which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 2002 need not comply with **19.3.1, 19.3.5, 19.3.6** and **19.3.9, Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed. (12) Portable instruments for measuring oxygen concentrations For tankers which had been at the beginning stage of construction prior to 1 January 2012, a survey is to be carried out by the first survey on of after 1 January 2012 to verify that the portable instruments for	

4.5.7(1), Part R of the Rules are equipped. (13) Devices to prevent the passage of flame (flame screen, flame arrester, detonation flame arrester and high velocity device) For devices to prevent the passage of flame required to ships which had been at the beginning stage of construction before 1 January 2013 and for ships which carry cargos shown as apparatus groups II*B*, II*C* or no apparatus group assigned in the column *i*” of **Table S17.1, Part S of the Rules**, a survey is to be carried out to verify that the devices are in compliance with the requirements of **7.4.2-2, Chapter 7, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine ~~use~~Use** by the first scheduled dry-docking after 1 January 2013. (14) Means of recharging breathing apparatus cylinders and spare cylinders For ships at the beginning stage of construction prior to 1 July 2014, a survey is to be carried out by the first survey on or after 1 July 2014 to verify compliance with the requirements of **15.2.3, Part R of the Rules**. (15) Fire-fighter’s communication For ships at the beginning stage of construction prior to 1 July 2014, a survey is to be carried out by the first survey on or after 1 July 2018 to verify compliance with the requirements of **10.10.4, Part R of the Rules**. (16) Fire-fighter’s outfits For ships equipped with self-contained compressed air breathing apparatus of fire-fighter’s outfits which had been at the beginning stage of construction before 1 July 2014, a survey is to be carried out to verify that such apparatuses comply with the requirements of	measuring oxygen concentrations specified in **4.5.7(1), Part R of the Rules** are equipped. (13) Devices to prevent the passage of flame (flame screen, flame arrester, detonation flame arrester and high velocity device) For devices to prevent the passage of flame required to ships which had been at the beginning stage of construction before 1 January 2013 and for ships which carry cargos shown as apparatus groups II*B*, II*C* or no apparatus group assigned in the column *i*” of **Table S17.1, Part S of the Rules**, a survey is to be carried out to verify that the devices are in compliance with the requirements of **7.4.2-2**, **Chapter 7**, **Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine use** by the first scheduled dry-docking after 1 January 2013. (14) Means of recharging breathing apparatus cylinders and spare cylinders For ships at the beginning stage of construction prior to 1 July 2014, a survey is to be carried out by the first survey on or after 1 July 2014 to verify compliance with the requirements of **15.2.3, Part R of the Rules**. (15) Fire-fighter’s communication For ships at the beginning stage of construction prior to 1 July 2014, a survey is to be carried out by the first survey on or after 1 July 2018 to verify compliance with the requirements of **10.10.4, Part R of the Rules**. (16) Fire-fighter’s outfits For ships equipped with self-contained compressed air breathing apparatus of fire-fighter’s outfits which had been at the beginning stage of construction before 1 July 2014, a survey is to be carried out to verify that	

23.2.1-2(2), Part R of the Rules by the first survey on or after 1 July 2019. (17) Stability instruments for ships carrying dangerous chemicals in bulk For ships carrying dangerous chemicals in bulk which had been at the beginning stage of construction before 1 January 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part S of the Rules** by the first scheduled special survey on or after 1 January 2016 but not later than 1 January 2021. (18) Stability instruments for ships carrying liquefied gases in bulk For ships carrying liquefied gases in bulk which had been at the beginning stage of construction before 1 July 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part N of the Rules** by the first scheduled special survey on or after 1 July 2016 but not later than 1 July 2021. (19) Portable gas detector For vehicle carriers defined in **3.2.54, Part R** for the carriage of motor vehicles with compressed natural gas in their tanks for their own propulsion and/or motor vehicles with compressed hydrogen in their tanks for their own propulsion which had been at the beginning stage of construction before 1 January 2016, a survey is to be carried out to verify compliance with the requirements of **20A.5, Part R of the Rules** by the first survey on or after 1 January 2016. (20) Portable atmosphere testing instruments for enclosed spaces For ships of not less than 500 *gross tonnage* engaged on international voyages which had been at the beginning stage of construction before 1 July 2016, it	such apparatuses comply with the requirements of **23.2.1-2(2), Part R of the Rules** by the first survey on or after 1 July 2019. (17) Stability instruments for ships carrying dangerous chemicals in bulk For ships carrying dangerous chemicals in bulk which had been at the beginning stage of construction before 1 January 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part S of the Rules** by the first scheduled special survey on or after 1 January 2016 but not later than 1 January 2021. (18) Stability instruments for ships carrying liquefied gases in bulk For ships carrying liquefied gases in bulk which had been at the beginning stage of construction before 1 July 2016, a survey is to be carried out to verify compliance with the requirements of **2.2.3, Part N of the Rules** by the first scheduled special survey on or after 1 July 2016 but not later than 1 July 2021. (19) Portable gas detector For vehicle carriers defined in **3.2.54, Part R** for the carriage of motor vehicles with compressed natural gas in their tanks for their own propulsion and/or motor vehicles with compressed hydrogen in their tanks for their own propulsion which had been at the beginning stage of construction before 1 January 2016, a survey is to be carried out to verify compliance with the requirements of **20A.5, Part R of the Rules** by the first survey on or after 1 January 2016. (20) Portable atmosphere testing instruments for enclosed spaces For ships of not less than 500 *gross tonnage* engaged on international voyages which had been at the	

is to be verified that portable atmosphere testing instruments complying with **1.5.1, Part B of the Rules** are provided on board by the first survey on or after 1 July 2016. (21) Ships operating in polar waters For ships operating in polar waters defined in **1.1.1-2, Part I of the Rules** at the beginning stage of construction before 1 January 2017, a survey is to be carried out to verify compliance with the requirements of **Chapter 1** (except for **1.1.1-4**, **1.1.1-5**, **1.1.2**, **1.1.3** and **1.1.4-2**) to **Chapter 7, Part I of the Rules** by the first Intermediate Survey or Special Survey after 1 January 2018, whichever occurs first. (22) Ships using low-flashpoint fuels (a) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **Part GF of the Rules** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified: i) Ships which convert to using low-flashpoint fuels on or after 1 January 2017; or ii) Ships which, on or after 1 January 2017, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2017. (b) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **GF11.3.1-1**, **GF11.3.1-2**, **GF12.5.2-2** and **GF15.10.1, Part GF of the Guidance** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:	beginning stage of construction before 1 July 2016, it is to be verified that portable atmosphere testing instruments complying with **1.5.1, Part B of the Rules** are provided on board by the first survey on or after 1 July 2016. (21) Ships operating in polar waters For ships operating in polar waters defined in **1.1.1-2**, **Part I of the Rules** at the beginning stage of construction before 1 January 2017, a survey is to be carried out to verify compliance with the requirements of **Chapter 1** (except for **1.1.1-4**, **1.1.1-5**, **1.1.2**, **1.1.3** and **1.1.4-2**) to **Chapter 7, Part I of the Rules** by the first Intermediate Survey or Special Survey after 1 January 2018, whichever occurs first. (22) Ships using low-flashpoint fuels (a) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **Part GF of the Rules** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified: i) Ships which convert to using low-flashpoint fuels on or after 1 January 2017; or ii) Ships which, on or after 1 January 2017, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2017. (b) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **GF11.3.1-1**, **GF11.3.1-2**, **GF12.5.2-2** and **GF15.10.1, Part GF of the Guidance** before using low-flashpoint fuels or	

i) Ships which convert to using low-flashpoint fuels on or after 1 July 2019; or ii) Ships which, on or after 1 July 2019, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 July 2019. (c) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **11.8.1, Part GF of the Rules** and **GF11.3.1-2, Part GF of the Guidance** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified: i) Ships which convert to using low-flashpoint fuels on or after 1 January 2024; or ii) Ships which, on or after 1 January 2024, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2024. (23) Inspection/survey plans for cargo containment systems for ships carrying liquefied gases in bulk (including programs of non-destructive testing for periodical surveys for independent tanks of Type *B* and programs of examination and testing of cargo containment systems for periodical surveys for membrane and semi-membrane tanks) For ships carrying liquefied gases in bulk which are at the beginning stage of construction on or after 1 July 2016, a survey is to be carried out to verify that the inspection/survey plans for cargo containment systems specified in **4.3.6, Part N of the Rules** are provided on board by the first survey on or after 1 July	undertaking to use different low-flashpoint fuels than specified: i) Ships which convert to using low-flashpoint fuels on or after 1 July 2019; or ii) Ships which, on or after 1 July 2019, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 July 2019. (c) For ships that fall under the following **i)** or **ii)**, a survey is to be carried out to verify compliance with the requirements of **11.8.1, Part GF of the Rules** and **GF11.3.1-2, Part GF of the Guidance** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified: i) Ships which convert to using low-flashpoint fuels on or after 1 January 2024; or ii) Ships which, on or after 1 January 2024, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2024. (23) Inspection/survey plans for cargo containment systems for ships carrying liquefied gases in bulk (including programs of non-destructive testing for periodical surveys for independent tanks of Type *B* and programs of examination and testing of cargo containment systems for periodical surveys for membrane and semi-membrane tanks) For ships carrying liquefied gases in bulk which are at the beginning stage of construction on or after 1 July 2016, a survey is to be carried out to verify that the inspection/survey plans for cargo containment	

2018. (24) Inspection/survey plans for liquefied gas fuel containment systems for ships using low-flashpoint fuels (including programs of non-destructive testing for periodical surveys for independent fuel storage tanks of Type *B* and programs of examination and testing of liquefied gas fuel containment systems for periodical surveys for membrane tanks) For ships which fall under the following, a survey is to be carried out to verify that the inspection/survey plans for liquefied gas fuel containment systems specified in **6.4.1-8, Part GF of the Rules** are provided on board by the first survey on or after 1 July 2018. (a) Ships using low-flashpoint fuels for which the building contract is placed on or after 1 January 2017; or (b) In the absence of a building contract, ships using low-flashpoint fuels which are at the beginning stage of construction on or after 1 July 2017; or (c) Ships using low-flashpoint fuels for which delivery is on or after 1 January 2021; or (d) Ships using low-flashpoint fuels which convert to using low-flashpoint fuels on or after 1 January 2017; or (e) Ships using low-flashpoint fuels which, on or after 1 January 2017, undertake to use low-flashpoint fuels different from those which it was originally approved to use before 1 January 2017.	systems specified in **4.3.6, Part N of the Rules** are provided on board by the first survey on or after 1 July 2018. (24) Inspection/survey plans for liquefied gas fuel containment systems for ships using low-flashpoint fuels (including programs of non-destructive testing for periodical surveys for independent fuel storage tanks of Type *B* and programs of examination and testing of liquefied gas fuel containment systems for periodical surveys for membrane tanks) For ships which fall under the following, a survey is to be carried out to verify that the inspection/survey plans for liquefied gas fuel containment systems specified in **6.4.1-8, Part GF of the Rules** are provided on board by the first survey on or after 1 July 2018. (a) Ships using low-flashpoint fuels for which the building contract is placed on or after 1 January 2017; or (b) In the absence of a building contract, ships using low-flashpoint fuels which are at the beginning stage of construction on or after 1 July 2017; or (c) Ships using low-flashpoint fuels for which delivery is on or after 1 January 2021; or (d) Ships using low-flashpoint fuels which convert to using low-flashpoint fuels on or after 1 January 2017; or (e) Ships using low-flashpoint fuels which, on or after 1 January 2017, undertake to use low-flashpoint fuels different from those which it was originally approved to use before 1 January 2017.	

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Correction	Present	Note
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) Hatch covers located forward of 0.25 L_1 from the forward end of L_1 of bulk carriers which are contracted for construction on or after 1 July 1998 and prior to 1 January 2004 and are at a beginning stage of construction prior to 1 January 2005 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. L_1 is the length of ship specified in **2.1.2, Part A of the Rules** or 0.97 *times* the length of ship on the designed maximum load line, whichever is smaller (m). $t_{renewal} = t_{as\text{-}built} - t_c + 0.5$ (mm) $t_{as\text{-}built}$: as built thickness (mm) t_c: Corrosion addition specified in **Table B1.3.1-1(a)** (2) Hatch covers and hatch coamings of bulk carriers not complying with the provisions of **Part CSR-B** or **Part CSR-B&T of the Rules**, and which are contracted for construction on or after 1 January 2004 or are at the beginning stage of construction on or after 1 January 2005; or ships other than bulk carries which are at the beginning stage of construction on or after 1 January 2005 and that have the application for Classification Survey during Construction submitted to the Society prior to 10 June 2005 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.	**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) Hatch covers located forward of 0.25 L_1 from the forward end of L_1 of bulk carriers which are contracted for construction on or after 1 July 1998 and prior to 1 January 2004 and are at a beginning stage of construction prior to 1 January 2005 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. L_1 is the length of ship specified in **2.1.2, Part A of the Rules** or 0.97 *times* the length of ship on the designed maximum load line, whichever is smaller (m). $t_{renewal} = t_{as\text{-}built} - t_c + 0.5$ (mm) $t_{as\text{-}built}$: as built thickness (mm) t_c: Corrosion addition specified in **Table B1.3.1-1(a)** (2) Hatch covers and hatch coamings of bulk carriers not complying with the provisions of **Part CSR-B** or **CSR-B&T of the Rules,** and which are contracted for construction on or after 1 January 2004 or are at the beginning stage of construction on or after 1 January 2005; or ships other than bulk carries which are at the beginning stage of construction on or after 1 January 2005 and that have the application for Classification Survey during Construction submitted to the Society prior to 10 June 2005 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.	Wording correction

$t_{renewal} = t_{as\text{-}built} - t_{c} + 0.5\ (mm)$ $t_{as\text{-}built}$: as built thickness (mm) t_{c}: Corrosion addition specified in **Table B1.3.1-1(b)** (3) Hatch covers and hatch coamings of ships other than bulk carriers that have the application for Classification Survey during Construction submitted to the Society on or after 10 June 2005 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(c)** Where corrosion addition t_{c} is 1.0 (mm), renewal thickness may be given by the formula $t_{renewal} = t_{as\text{-}built} - t_{c}\ (mm)$ (4) Hatch covers and hatch coamings of ships complying with the requirements in **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 $t_{renewal} = t_{as\text{-}built} - t_{c}\ (mm)$	$t_{renewal} = t_{as\text{-}built} - t_{c} + 0.5\ (mm)$ $t_{as\text{-}built}$: as built thickness (mm) t_{c}: Corrosion addition specified in **Table B1.3.1-1(b)** (3) Hatch covers and hatch coamings of ships other than bulk carriers that have the application for Classification Survey during Construction submitted to the Society on or after 10 June 2005 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(c)** Where corrosion addition t_{c} is 1.0 (mm), renewal thickness may be given by the formula $t_{renewal} = t_{as\text{-}built} - t_{c}\ (mm)$ (4) Hatch covers and hatch coamings of ships complying with the requirements in **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 $t_{renewal} = t_{as\text{-}built} - t_{c}\ (mm)$	

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Correction	Present	Note
6 In oil tankers, bulk carriers and ships carrying dangerous chemicals in bulk with integral tanks, the following documents from **(1)** to **(9)** are to be kept on board the ship to be readily available for the Surveyor. In general dry cargo ships of not less than 500 *gross tonnage*, at least **(1)** and **(3)** of the following documents are to be kept on board the ship. (1) Records on structural surveys (2) Condition evaluation report. Where the language used in preparation of the report is not English, a translation into English is to be included. (and see the requirement in **B5.2.6-6(6)** for bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules** and all oil tankers) (3) Thickness measurement reports (4) Main structural plans for hull (for ships built under **Part CSR-B**, **Part CSR-T** or **Part CSR-B&T of the Rules**, these plans are to include both as-built and renewal thickness. Any thickness for voluntary additions is also to be clearly indicated on the plans. A midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for transverse sections in all cargo holds of bulk carriers or cargo tanks of double hull oil tankers specified in either **1.4 Section 2 Chapter 13, Part CSR-B**, **Section 12, Part CSR-T** or **2.2, Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules**.) (5) Cargo and ballast history (6) Previous repair history (7) Records of inspections by ship's personnel with reference to structural deterioration in general, the leakage in bulkheads and piping and the condition of	**6** In oil tankers, bulk carriers and ships carrying dangerous chemicals in bulk with integral tanks, the following documents from **(1)** to **(9)** are to be kept on board the ship to be readily available for the Surveyor. In general dry cargo ships of not less than 500 *gross tonnage*, at least **(1)** and **(3)** of the following documents are to be kept on board the ship. (1) Records on structural surveys (2) Condition evaluation report. Where the language used in preparation of the report is not English, a translation into English is to be included. (and see the requirement in **B5.2.6-6(6)** for bulk carriers built under **Part CSR-B** or **CSR-B&T of the Rules** and all oil tankers) (3) Thickness measurement reports (4) Main structural plans for hull (for ships built under **Part CSR-B, CSR-T** or **CSR-B&T of the Rules**, these plans are to include both as-built and renewal thickness. Any thickness for voluntary additions is also to be clearly indicated on the plans. A midship section plan to be supplied on board the ship is to include the minimum allowable hull girder sectional properties for transverse sections in all cargo holds of bulk carriers or cargo tanks of double hull oil tankers specified in either **1.4 Section 2 Chapter 13, Part CSR-B, Section 12, Part CSR-T** or **2.2, Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules**.) (5) Cargo and ballast history (6) Previous repair history (7) Records of inspections by ship's personnel with reference to structural deterioration in general, the leakage in bulkheads and piping and the condition of	Wording correction

coating or corrosion prevention system, if any (8) In oil tankers and ships carrying dangerous chemicals in bulk, extent of use of inert gas plant and tank cleaning procedures (9) Any other information that will help identify Suspect Areas requiring inspection However, ships which do not engage in international voyages and are classed for restricted service such as having class notation "Coasting Service", "Smooth Water Service", etc., as specified in **1.4.2-2, Part B of the Rules** need not keep onboard the document of (2) above.	coating or corrosion prevention system, if any (8) In oil tankers and ships carrying dangerous chemicals in bulk, extent of use of inert gas plant and tank cleaning procedures (9) Any other information that will help identify Suspect Areas requiring inspection However, ships which do not engage in international voyages and are classed for restricted service such as having class notation "Coasting Service", "Smooth Water Service", etc., as specified in **1.4.2-2, Part B of the Rules** need not keep onboard the document of (2) above.	

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Correction	Present	Note
12 For bulk carriers as defined in **1.3.1(13), Part B of the Rules** and bulk carriers as defined in **An1.2.1~~.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*."	**12** For bulk carriers as defined in **1.3.1(13), Part B of the Rules** and bulk carriers as defined in **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*."	Reference correction

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Correction	Present	Note
7 “Noise survey report” in **2.1.6-1(2)(r), Part B of the Rules** refers to the report in **An4.2, Annex 2.3.1-2 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS”**~~.~~ **of the Rules.** It is recommended that documents containing the noise exposure level determined in accordance with **An3.3.6, Annex 2.3.1-2 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS” of the Rules** are attached to the “Noise survey report”.	**7** “Noise survey report” in **2.1.6-1(2)(r), Part B of the Rules** refers to the report in **An4.2, Annex 2.3.1-2 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS”**. It is recommended that documents containing the noise exposure level determined in accordance with **An3.3.6, Annex 2.3.1-2 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS”** are attached to the “Noise survey report”.	Wording correction

Guidance for the survey and construction of steel ships Part B B2 B2.3.1-1

Correction	Present	Note
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	**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	Wording correction

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, Part B of the Rules**.	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 **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.	(6) In addition to the tests specified in **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.	(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.	(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.	

Guidance for the survey and construction of steel ships Part B B2 B2.3.2-3

Correction	Present	Note
3 The booklet required in **2.3.2, Part B of the Rules** is to be as follows according to the specifics of the ship. (1) For ships complying with **Part U of the Rules**, the booklet is to be prepared in accordance with **Annex U1.2.1 "GUIDANCE FOR STABILITY INFORMATION FOR MASTER", Part U of the Guidance**. (2) For ships other than **(1)** above that comply with the International Convention on Load Lines, 1966 (referred to as "*ILLC*" in this Part), the booklet is to be prepared in the form approved by the Society. (3) For ships other than **(1)** and **(2)** above, the booklet is to be prepared as deemed appropriate by the Society.	**3** The booklet required in **2.3.2, Part B of the Rules** is to be as follows according to the specifics of the ship. (1) For ships complying with **Part U of the Rules**, the booklet is to be prepared in accordance with **Annex U1.2.1 "GUIDANCE FOR STABILITY INFORMATION FOR MASTER"**. (2) For ships other than **(1)** above that comply with the International Convention on Load Lines, 1966 (referred to as "*ILLC*" in this Part), the booklet is to be prepared in the form approved by the Society. (3) For ships other than **(1)** and **(2)** above, the booklet is to be prepared as deemed appropriate by the Society.	Wording correction

Guidance for the survey and construction of steel ships Part B B2 B2.5.1-4

Correction	Present	Note
4 In applying **2.5.1-1, Part B of the Rules**, the tightness of such boundaries is to be verified by the tests stipulated in **Annex 2.1.5 "Testing Procedures of Watertight Compartments" of the Rules** in cases where any modifications or repairs have been carried out which affects the tightness of the watertight boundary.	**4** In applying **2.5.1-1, Part B of the Rules**, the tightness of such boundaries is to be verified by the tests stipulated in **Annex 2.1.5 "Testing Procedures of Watertight Compartments"** in cases where any modifications or repairs have been carried out which affects the tightness of the watertight boundary.	Wording correction

Guidance for the survey and construction of steel ships Part B B3 B3.2.1-5

Correction	Present	Note
5 "Noise survey report" in item 11, **Table B3.1** in **3.2.1, Part B of the Rules** refers to the report in **An4.2, Annex 2.3.1~~.4~~-2 "PROCEDURES FOR ON BOARD NOISE MEASUREMENTS" of the Rules**.	**5** "Noise survey report" in **item 11, Table B3.1 in 3.2.1, Part B of the Rules** refers to the report in **An4.2, Annex 2.1.4 "PROCEDURES FOR ON BOARD NOISE MEASUREMENTS"**.	Reference correction

Guidance for the survey and construction of steel ships Part B B3 B3.2.2-5

Correction	Present	Note
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~~B3.2, 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 **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules** (4) In addition to **(3)** above, clearance measurements for the hinges, bearings and thrust bearings of doors are to be carried out in cases where no dismantling is required. If the results of the function test are not satisfactory, dismantling may be required to measure clearances in cases where deemed necessary by the Surveyor. If dismantling is carried out, a visual examination of hinge pins and bearings together with	**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 **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules** (4) In addition to **(3)** above, clearance measurements for the hinges, bearings and thrust bearings of doors are to be carried out in cases where no dismantling is required. If the results of the function test are not satisfactory, dismantling may be required to measure clearances in cases where deemed necessary by the Surveyor. If dismantling is carried out, a visual examination of hinge pins and bearings together with	Reference correction

non-destructive testing of the hinge pin is to be carried out. Clearance measurements of securing, supporting and locking devices are to be taken in cases where indicated in the Operating and Maintenance Manual. (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 **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules** (6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual. (7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room monitor.	non-destructive testing of the hinge pin is to be carried out. Clearance measurements of securing, supporting and locking devices are to be taken in cases where indicated in the Operating and Maintenance Manual. (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 **14.10, Part 1, Part C of the Rules** and **Chapter 21, Part CS of the Rules** (6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual. (7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room monitor.	

Guidance for the survey and construction of steel ships Part B B3 B3.2.2-6

Correction	Present	Note
6 “Hearing protectors” in item 22, **Table B3.2 in 3.2.1, Part B of the Rules** refers to the hearing protectors in **An6.1** and **An6.2, Annex 2.3.1~~.4~~-2 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS” of the Rules**.	**6** “Hearing protectors” in item 22, **Table B3.2 in 3.2.1, Part B of the Rules** refers to the hearing protectors in **An6.1** and **An6.2, Annex 2.1.4 “PROCEDURES FOR ON BOARD NOISE MEASUREMENTS”**.	Reference correction

Guidance for the survey and construction of steel ships Part B B3 B3.2.3-1

Correction	Present	Note
1 The hose test stipulated in items 1 and 2 of **Table B3.3, Part B of the Rules** is to be in accordance with **An1.4.4-3~~ of~~, Annex 2.1.5 “Testing Procedures of Watertight Compartments” of the Rules**.	**1** The hose test stipulated in items 1 and 2 of **Table B3.3, Part B of the Rules** is to be in accordance with **An1.4.4-3 of Annex 2.1.5 “Testing Procedures of Watertight Compartments”**.	Wording correction

Guidance for the survey and construction of steel ships Part B B3 B3.2.3-6

Correction	Present	Note
6 Inspection of water level detection and alarm systems (refer to **13.8.5**, **13.8.6** and **13.8.7, Part D of the Rules**) 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	**6** Inspection of water level detection and alarm systems (refer to **13.8.5**, **13.8.6** and **13.8.7, Part D of the Rules**) 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	Reference correction

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 **An1.2.1~~.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 (3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in ~~**Annex 1.1**~~ **An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules** and tankers) that fall under any of the following. (a) for which the building contract is placed on or after 1 January 2024; (b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or (c) the delivery of which is on or after 1 January 2028	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 **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 (3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in **Annex 1.1 An1.2.1(1), Part 2-2, Part C of the Rules** and tankers) that fall under any of the following. (a) for which the building contract is placed on or after 1 January 2024; (b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or (c) the delivery of which is on or after 1 January 2028	

Guidance for the survey and construction of steel ships Part B B3 B3.2.3-7

Correction	Present	Note
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 **An1.2.1~~.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 **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	Reference correction

Guidance for the survey and construction of steel ships Part B B3 B3.3.2-1

Correction	Present	Note
1 In applying **3.3.2-1, Part B of the Rules**, **2.3.2-2 of Rules for Automatic and Remote Control Systems** is also to be applied for surveys of periodically unattended machinery spaces.	**1** In applying **3.3.2-1, Part B of the Rules**, **2.3.2-2** of **Rules for Automatic and Remote** is also to be applied for surveys of periodically unattended machinery spaces.	Wording correction

Guidance for the survey and construction of steel ships Part B B3 B3.4.2-2

Correction	Present	Note
2 In applying item 3(1)(b) of **Table B3.9, Part B of the Rules**, 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.	**2** In applying item 3(1)(b) of **Table B3.9**, 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.	Wording correction

Guidance for the survey and construction of steel ships Part B B3 B3.4.2-3

Correction	Present	Note
3 In applying item 4 of **Table B3.9, Part B of the Rules**, the examination of high level alarms on ships at beginning stage of construction on or after 1 July 2017 is to include the functional test as specified in **13.3.6, Part N of the Rules**.	**3** In applying item 4 of **Table B3.9**, the examination of high level alarms on ships at beginning stage of construction on or after 1 July 2017 is to include the functional test as specified in **13.3.6, Part N of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part B B4 B4.2.3-2

Correction	Present	Note
2 The hose test stipulated in items 2 and 14 of **Table B4.1, Part B of the Rules** is to be in accordance with **An1.4.4-3~~ of~~, Annex 2.1.5 “Testing Procedures of Watertight Compartments” of the Rules**.	**2** The hose test stipulated in items 2 and 14 of **Table B4.1, Part B of the Rules** is to be in accordance with **An1.4.4-3 of Annex 2.1.5 “Testing Procedures of Watertight Compartments”**.	Wording correction

Guidance for the survey and construction of steel ships Part B B4 B4.6.2-1

Correction	Present	Note
1 The sentence “it is to be confirmed that such non-metallic membranes are maintained in good condition” in item 2 of **Table B4.8, Part B of the Rules** means the following: visual examinations are to be carried out to verify no cracks and deterioration; and it is to be confirmed membranes are renewed at intervals not exceeding 3 *years,* have been properly adjusted, and have been tested for performance. In cases where relief valves are approved for use for membranes whose renewal intervals exceed 3 *years* in accordance with **6.4.1-3, Annex 1~~, Part GF of~~ “Guidance for Equipment and Fittings of Ships Using Low-flashpoint Fuels”, Part GF of the Guidance,** it is to be confirmed that they are renewed at approved intervals.	**1** The sentence “it is to be confirmed that such non-metallic membranes are maintained in good condition” in item 2 of **Table B4.8, Part B of the Rules** means the following: visual examinations are to be carried out to verify no cracks and deterioration; and it is to be confirmed membranes are renewed at intervals not exceeding 3 *years,* have been properly adjusted, and have been tested for performance. In cases where relief valves are approved for use for membranes whose renewal intervals exceed 3 *years* in accordance with **6.4.1-3, Annex 1, Part GF of “Guidance for Equipment and Fittings of Ships Using Low-flashpoint Fuels”**, it is to be confirmed that they are renewed at approved intervals.	Wording correction

Guidance for the survey and construction of steel ships Part B B4 B4.6.2-2

Correction	Present	Note
2 The term “hazardous areas” in item 3 of **Table B4.8, Part B of the Rules** means the hazardous areas specified in **12.5, Part GF**, and **4.2.3-4** and **-5**~~ of 4.2.3~~, **Part H of the Rules**.	**2** The term “hazardous areas” in item 3 of **Table B4.8, Part B of the Rules** means the hazardous areas specified in **12.5, Part GF**, and **-4** and **-5** of **4.2.3, Part H of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part B B5 B5.2.3-2

Correction	Present	Note
2 The hose test stipulated in **5.2.3-2(2)** and **(5), Part B of the Rules** is to be in accordance with **An1.4.4-3, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**~~.~~ **of the Rules**.	**2** The hose test stipulated in **5.2.3-2(2)** and **(5), Part B of the Rules** is to be in accordance with **An1.4.4-3, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**.	Wording correction

Guidance for the survey and construction of steel ships Part B B5 B5.2.6-6

Correction	Present	Note
6 “Ship’s longitudinal strength evaluation” required in **5.2.6-8, Part B of the Rules** is to be carried out in accordance with the following. (1) Transverse sectional areas of deck flanges (deck plating and deck longitudinals) and bottom flanges (bottom shell plating and bottom longitudinals) of the ship’s hull girder are to be calculated by using the thickness of structural members measured in transverse sections specified in **Table B5.8**, **Table B5.10**, **Table B5.15** and **Table B5.21**, **Part B of the Rules.** It is to be confirmed that the diminution of the transverse sectional area does not exceed 10% of the as-built area. (2) Where the diminution of sectional areas of either deck or bottom flange exceeds 10% of the respective as-built area, it is to be confirmed that the actual section moduli, which are calculated by using the thicknesses	**6** “Ship’s longitudinal strength evaluation” required in **5.2.6-8, Part B of the Rules** is to be carried out in accordance with the following. (1) Transverse sectional areas of deck flanges (deck plating and deck longitudinals) and bottom flanges (bottom shell plating and bottom longitudinals) of the ship’s hull girder are to be calculated by using the thickness of structural members measured in transverse sections specified in **Table B5.8**, **Table B5.10**, **Table B5.15** and **Table B5.21**, **Part B of the Rules.** It is to be confirmed that the diminution of the transverse sectional area does not exceed 10% of the as-built area. (2) Where the diminution of sectional areas of either deck or bottom flange exceeds 10% of the respective as-built area, it is to be confirmed that the actual section moduli, which are calculated by using the thicknesses	Wording correction

mentioned above, is not less than those specified in **Table B5.2.6-1**. (3) For double hull oil tankers built under **Part CSR-T** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.5, Section 12, Part CSR-T** or **Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.10** and **Table B5.31, Part B of the Rules**. (4) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.4, Section 2 Chapter 13, Part CSR-B** or **2.2, Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.15** and **Table B5.30, Part B of the Rules**. (5) Where repairs are carried out to satisfy the requirements of the preceding **(1)** to **(4)**, the ship's longitudinal strength for other transverse sections is to be evaluated by using the result of additional thickness measurements. (6) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules** and oil tankers of not less than 130 *m* in length for freeboard, the result of the final evaluation of the ship's longitudinal strength carried out after the ship reaches 10 *years* of age is to be reported as a part of the condition evaluation report specified in **B1.4.2-6(2)**.	mentioned above, is not less than those specified in **Table B5.2.6-1**. (3) For double hull oil tankers built under **Part CSR-T** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.5 Section 12, Part CSR-T** or **Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.10** and **Table B5.31**. (4) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules**, notwithstanding provisions **(1)** and **(2)** above, it is to be confirmed that the condition of the ship satisfies the criteria specified in **1.4 Section 2 Chapter 13, Part CSR-B** or **2.2, Section 2, Chapter 13, Part 1, Part CSR-B&T of the Rules** by using the thickness of structural members measured in the transverse sections specified in **Table B5.15** and **Table B5.30**. (5) Where repairs are carried out to satisfy the requirements of the preceding **(1)** to **(4)**, the ship's longitudinal strength for other transverse sections is to be evaluated by using the result of additional thickness measurements. (6) For bulk carriers built under **Part CSR-B** or **Part CSR-B&T of the Rules** and oil tankers of not less than 130 *m* in length for freeboard, the result of the final evaluation of the ship's longitudinal strength carried out after the ship reaches 10 *years* of age is to be reported as a part of the condition evaluation report specified in **B1.4.2-6(2)**.	

Guidance for the survey and construction of steel ships Part B B5 B5.6.2-2

Correction	Present	Note
2 The term “hazardous areas” in item 6 of **Table B5.29, Part B of the Rules** means the hazardous areas specified in **12.5, Part GF**, and **4.2.3-4** and **-5**~~ of 4.2.3~~, **Part H of the Rules**.	**2** The term “hazardous areas” in item 6 of **Table B5.29, Part B of the Rules** means the hazardous areas specified in **12.5, Part GF**, and **-4** and **-5** of **4.2.3, Part H of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part B B5 B5.6.2-2

Correction	Present	Note
1 The pressure test stipulated in item 2 of **Table B6.1, Part B of the Rules** refers to that specified in item 13 of **Table An1.4-1, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**~~.~~ **of the Rules**.	**1** The pressure test stipulated in item 2 of **Table B6.1, Part B of the Rules** refers to that specified in item 13 of **Table An1.4-1, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**.	Wording correction

Guidance for the survey and construction of steel ships Part B B6 B6.1.1-1

Correction	Present	Note
1 The pressure test stipulated in item 2 of **Table B6.1, Part B of the Rules** refers to that specified in item 13 of **Table An1.4-1, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**~~.~~ **of the Rules**.	**1** The pressure test stipulated in item 2 of **Table B6.1, Part B of the Rules** refers to that specified in item 13 of **Table An1.4-1, Annex 2.1.5 “Testing Procedures of Watertight Compartments”**.	Wording correction

Guidance for the survey and construction of steel ships Part B B9 B9.1.3-4

Correction	Present	Note
4 Approval of PMS Conditions for approval of PMS are as follows: (1) Machinery maintenance scheme The machinery maintenance scheme for PMS is to specify maintenance works such as overhaul inspection, replacement of parts and general inspection with their time schedule and/or running hours for each item of machinery and equipment including their parts. The scheme is to be prepared based on the inspection and maintenance intervals recommended by the manufacturers of the machinery and equipment with input from the experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 5 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (2) Survey Schedule Table Survey intervals of the survey items are not to exceed those specified in the machinery maintenance scheme. The following items are to be generally opened and examined in the presence of the Surveyor. (a) Rotors, casings, main bearings, couplings between turbine and reduction gear, nozzle valves and manoeuvring valves for main steam turbine (b) Auxiliary steam turbine for main generator	**4** Approval of PMS Conditions for approval of PMS are as follows: (1) Machinery maintenance scheme The machinery maintenance scheme for PMS is to specify maintenance works such as overhaul inspection, replacement of parts and general inspection with their time schedule and/or running hours for each item of machinery and equipment including their parts. The scheme is to be prepared based on the inspection and maintenance intervals recommended by the manufacturers of the machinery and equipment with input from the experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 5 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (2) Survey Schedule Table Survey intervals of the survey items are not to exceed those specified in the machinery maintenance scheme. The following items are to be generally opened and examined in the presence of the Surveyor. (a) Rotors, casings, main bearings, couplings between turbine and reduction gear, nozzle valves and manoeuvring valves for main steam turbine (b) Auxiliary steam turbine for main generator	

(c) Reduction gears for main propulsion (d) Flexible couplings for main propulsion (e) Other items deemed necessary by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (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) Date of maintenance work (b) Signature by the Chief Engineer (c) Details of maintenance work and results (d) Total running hours (parts replacement intervals and overhaul intervals) (e) Names of parts replaced (f) Measuring data (including original design dimensions and allowable tolerance) (g) The condition of damage and repair method (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 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) Chief Engineer The Chief Engineer in charge of PMS is to be a person designated by the shipowner or ship management company. (5) Computer Computers used for maintenance management system	(c) Reduction gears for main propulsion (d) Flexible couplings for main propulsion (e) Other items deemed necessary by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (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) Date of maintenance work (b) Signature by the Chief Engineer (c) Details of maintenance work and results (d) Total running hours (parts replacement intervals and overhaul intervals) (e) Names of parts replaced (f) Measuring data (including original design dimensions and allowable tolerance) (g) The condition of damage and repair method (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 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) Chief Engineer The Chief Engineer in charge of PMS is to be a person designated by the shipowner or ship management company. (5) Computer Computers used for maintenance management system	

are to satisfy the following requirements specified in **(a)** through **(f)**: (a) Computers are to be configured so that the effects of a system failure in part of the circuits or devices can be limited to a certain range as far as possible. (b) Each system component is to be protected against overvoltages (electrical noise) likely to enter through input/output terminals. (c) Central processing units and important peripheral devices are to have a self-monitoring function. (d) Important programmes and data are not to be deleted in the event of a temporary failure of the external source of power supply. (e) Spare parts for important system components that require specialist services for repairs are to be supplied in readily replaceable part units. (f) It is recommended that the software is approved in accordance with **Annex 9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE"**~~.~~ **of the Rules**.	are to satisfy the following requirements specified in **(a)** through **(f)**: (a) Computers are to be configured so that the effects of a system failure in part of the circuits or devices can be limited to a certain range as far as possible. (b) Each system component is to be protected against overvoltages (electrical noise) likely to enter through input/output terminals. (c) Central processing units and important peripheral devices are to have a self-monitoring function. (d) Important programmes and data are not to be deleted in the event of a temporary failure of the external source of power supply. (e) Spare parts for important system components that require specialist services for repairs are to be supplied in readily replaceable part units. (f) It is recommended that the software is approved in accordance with **Annex 9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE"**.	Wording correction

Guidance for the survey and construction of steel ships Part B B9 B9.1.3-6

Correction	Present	Note
6 Surveys based on condition monitoring and diagnosis The wording "requirements specified otherwise by the Society" in **9.1.3-2, Part ~~D~~B of the Rules** means the following: (1) Annual Survey It is to be verified that condition monitoring has been properly carried out and as a result of which, machinery, equipment and parts are in good order. Confirmation that the condition monitoring system and maintenance management system are being operated effectively and are also in good order is to be made. If as a result of this confirmation, the Society deems that proper maintenance has not been carried out, an open-up examination in the presence of the surveyor may be required. Condition monitoring data and the results of the diagnosis are to be evaluated by the Society before the survey and are to be retained on board at all times. (2) Occasional Survey Any damage to items covered by PMS or any abnormal conditions observed by the condition monitoring system are to be reported to the Society according to the approved machinery maintenance scheme without delay. Upon review of the reports, the Society may request an occasional survey when considered necessary.	**6** Surveys based on condition monitoring and diagnosis The wording "requirements specified otherwise by the Society" in **9.1.3-2**, **Part D of the Rules** means the following: (1) Annual Survey It is to be verified that condition monitoring has been properly carried out and as a result of which, machinery, equipment and parts are in good order. Confirmation that the condition monitoring system and maintenance management system are being operated effectively and are also in good order is to be made. If as a result of this confirmation, the Society deems that proper maintenance has not been carried out, an open-up examination in the presence of the surveyor may be required. Condition monitoring data and the results of the diagnosis are to be evaluated by the Society before the survey and are to be retained on board at all times. (2) Occasional Survey Any damage to items covered by PMS or any abnormal conditions observed by the condition monitoring system are to be reported to the Society according to the approved machinery maintenance scheme without delay. Upon review of the reports, the Society may request an occasional survey when considered necessary.	Reference correction

Guidance for the survey and construction of steel ships Part B B9 B9.1.4-5

Correction	Present	Note
5 Approval of CBM Conditions for approval of CBM are as follows: (1) Machinery maintenance scheme for CBM The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following **(a)** to **(d)**. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (a) The functions of the condition monitoring system (b) Procedures related to condition monitoring and diagnosis (c) Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society) (d) Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly (2) Condition monitoring system The condition monitoring system is to satisfy the following requirements specified in **(a)** to **(h)**. In cases where this system is modified, that modification is to be approved by the Society. (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in **18.7.1, Part D of the Rules**. (b) The hardware and software of the computer is to	**5** Approval of CBM Conditions for approval of CBM are as follows: (1) Machinery maintenance scheme for CBM The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following **(a)** to **(d)**. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (a) The functions of the condition monitoring system (b) Procedures related to condition monitoring and diagnosis (c) Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society) (d) Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly (2) Condition monitoring system The condition monitoring system is to satisfy the following requirements specified in **(a)** to **(h)**. In cases where this system is modified, that modification is to be approved by the Society. (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in **18.7.1, Part D of the Rules**. (b) The hardware and software of the computer is to	Wording correction

comply with **B9.1.3-4(5)(a)** to **(e)** **of the Guidance** and **Chapters 1**, **2** and **3**, **Part X of the Rules**.	comply with **B9.1.3-4(5)(a)** to **(e)** and **Chapters 1, 2 and 3, Part X of the Rules**.	
(c) In addition to **(b)**, the software is to have condition monitoring function specified in **Annex 9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE" of the Rules** and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in **(a)**. The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.	(c) In addition to **(b)**, the software is to have condition monitoring function specified in **Annex 9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE"** and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in **(a)**. The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.	
(d) The condition monitoring system is to produce condition monitoring records.	(d) The condition monitoring system is to produce condition monitoring records.	
(e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.	(e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.	
(f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in **(a)**. Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in	(f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in **(a)**. Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in	

the event of loss of the communication function and transfer the data after the communication function is restored. (g) In cases where limiting parameters are modified, such modifications are to be identified. (h) The condition monitoring system is to include a method for backing up data at regular intervals. (3) Maintenance management system The maintenance management system is to have the maintenance records function specified in **Annex 9.1.3 “PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE”**~~.~~ **of the Rules**. This function may be incorporated into the condition monitoring system specified in **(2)**. (4) Survey Schedule Table Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (5) Condition monitoring record Condition monitoring records are to include at least the following items. (a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in **-6(2)** and relevant maintenance data.	the event of loss of the communication function and transfer the data after the communication function is restored. (g) In cases where limiting parameters are modified, such modifications are to be identified. (h) The condition monitoring system is to include a method for backing up data at regular intervals. (3) Maintenance management system The maintenance management system is to have the maintenance records function specified in **Annex 9.1.3 “PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE”**. This function may be incorporated into the condition monitoring system specified in **(2)**. (4) Survey Schedule Table Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (5) Condition monitoring record Condition monitoring records are to include at least the following items. (a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in **-6(2)** and relevant maintenance data.	

(b) Signature of the chief engineer (c) Contents and results of condition monitoring and diagnosis (including criteria for judgment) (6) Machinery maintenance record The machinery maintenance records are to include the items specified in **B9.1.3-4(3)** for the machinery, equipment or associated components subject to the scheme. Those records are to be created by the chief engineer and always to be available on board the ship. (7) Chief engineer and other ship personnel The machinery maintenance scheme for CBM is to be implemented by a chief engineer designated by the shipowner or ship management company. Access to the condition monitoring system and maintenance management system is to be permitted only to the chief engineer and other ship personnel who are designated by the shipowner or ship management company.	(b) Signature of the chief engineer (c) Contents and results of condition monitoring and diagnosis (including criteria for judgment) (6) Machinery maintenance record The machinery maintenance records are to include the items specified in **B9.1.3-4(3)** for the machinery, equipment or associated components subject to the scheme. Those records are to be created by the chief engineer and always to be available on board the ship. (7) Chief engineer and other ship personnel The machinery maintenance scheme for CBM is to be implemented by a chief engineer designated by the shipowner or ship management company. Access to the condition monitoring system and maintenance management system is to be permitted only to the chief engineer and other ship personnel who are designated by the shipowner or ship management company.	

Guidance for the survey and construction of steel ships Part B B10 B10.2.3

Correction	Present	Note
The wording "items specified otherwise by the Society" in **10.2.3, Part B of the Rules** means surveys of the tests specified in **10.2.3~~.2~~-2(1)** to **(3), Part B of the Rules**, and the wording "the Society may approve other survey methods which it considers to be appropriate" means to be in accordance with **B2.1.4-1(2)**.	The wording "items specified otherwise by the Society" in **10.2.3, Part B of the Rules** means surveys of the tests specified in **10.3.2-2(1)** to **(3), Part B of the Rules**, and the wording "the Society may approve other survey methods which it considers to be appropriate" means to be in accordance with **B2.1.4-1(2)**.	Reference correction

Guidance for the survey and construction of steel ships Part B B11 B11.2.3

Correction	Present	Note
The wording “items specified otherwise by the Society” in **11.2.3, Part B of the Rules** means surveys of the tests specified in **11.2.3~~.2-2~~(1)** and **(7), Part B of the Rules** as well as **7.2.1** and **7.2.2, Part T of the Rules**, and the wording “the Society may approve other survey methods which it considers to be appropriate” means to be in accordance with **B2.1.4-1(2)**.	The wording “items specified otherwise by the Society” in **11.2.3, Part B of the Rules** means surveys of the tests specified in **11.3.2-2(1)** and **(7), Part B of the Rules** as well as **7.2.1** and **7.2.2, Part T of the Rules**, and the wording “the Society may approve other survey methods which it considers to be appropriate” means to be in accordance with **B2.1.4-1(2)**.	Reference correction

Guidance for the survey and construction of steel ships Part B B12 B12.2.2-1

Correction	Present	Note
1 A stability information booklet for the unit specified in **12.2.2-1(1)(j), Part B of the Rules** is to be prepared in accordance with **Annex ~~B2.3~~U1.2~~,~~.1 “GUIDANCE FOR STABILITY INFORMATION FOR MASTER~~.”~~”, Part U of the Guidance**.	**1** A stability information booklet for the unit specified in **12.2.2-1(1)(j), Part B of the Rules** is to be prepared in accordance with **Annex B2.3.2**, “GUIDANCE FOR STABILITY INFORMATION FOR MASTER.”	Reference correction

Guidance for the survey and construction of steel ships Part B B12 B12.2.2-7

Correction	Present	Note
7 “Details of drilling derrick constructions” stipulated in **12.2.2-1(1)(p)i), Part B of the Rules,** refers to the following plans: (1) General arrangement (2) Details of the main structural members of the drilling derrick (3) Assembly plan of the drilling derrick (4) Foundations and anchor bolt plans of the drilling derrick	**7** “Details of drilling derrick constructions” stipulated in **12.2.2-1(1)(p)i)**, refers to the following plans: (1) General arrangement (2) Details of the main structural members of the drilling derrick (3) Assembly plan of the drilling derrick (4) Foundations and anchor bolt plans of the drilling derrick	Wording correction

Guidance for the survey and construction of steel ships Part B B12 B12.2.2-8

Correction	Present	Note
8 "Relevant documents" stipulated in **12.2.2-1(1)(p)~~ii),~~i), Part B of the Rules,** refers to the following: (1) Results of structural analysis (2) Structural details (3) Structural analysis method (4) Design criteria (5) Technical specifications for equipment installed on the drilling derrick (6) Material specification of the drilling derrick (7) In cases where bolted connections are applied for the drilling derrick, the specifications, materials and torque procedures for said bolts (8) Painting plans for the drilling derrick (9) Rigging arrangement	**8** "Relevant documents" stipulated in **12.2.2-1(1)(p)ii)**, refers to the following: (1) Results of structural analysis (2) Structural details (3) Structural analysis method (4) Design criteria (5) Technical specifications for equipment installed on the drilling derrick (6) Material specification of the drilling derrick (7) In cases where bolted connections are applied for the drilling derrick, the specifications, materials and torque procedures for said bolts (8) Painting plans for the drilling derrick (9) Rigging arrangement	Reference correction

Guidance for the survey and construction of steel ships Part B B12 B12.2.3-8

Correction	Present	Note
8 Surveys for drilling derricks stipulated in **12.2.3-1(7~~)~~), Part B of the Rules** are to be in accordance with the following **(1)** to **(3)**: (1) General examinations are to be carried out on drilling derricks including welded and bolted connections. (2) Non-destructive tests (ultrasonic tests or radiographic tests) are to be carried out on welded connections of main structural members and other parts liable to bear high stress. (3) It is to be confirmed that the drilling derrick is properly installed in its designed position and within the allowable design tolerance.	**8** Surveys for drilling derricks stipulated in **12.2.3-1(7)** are to be in accordance with the following **(1)** to **(3)**: (1) General examinations are to be carried out on drilling derricks including welded and bolted connections. (2) Non-destructive tests (ultrasonic tests or radiographic tests) are to be carried out on welded connections of main structural members and other parts liable to bear high stress. (3) It is to be confirmed that the drilling derrick is properly installed in its designed position and within the allowable design tolerance.	Wording correction

Guidance for the survey and construction of steel ships Part B B13 B13.4.4-2

Correction	Present	Note
2 Where the examinations specified in **-1** are carried out on the representative unit, the following examinations are to be carried out on the rest of the units. (1) Outside of side shell plating above the water line and deck Visual inspection (2) Outside of side shell plating below the water line and bottom plating In-water visual inspection (by an appropriate method of the Society) and confirmation of the condition of cathodic protection measures and coating (3) Pump room and motor room Examinations specified in **-1(3)** above (4) Thickness measurement of structural members Unless specified otherwise, thickness measurements of structural members specified in **(a)**, **(b)**, **(c)** and **(~~d~~e)** and uppermost part of structural members specified in **(g)** and **(i)** of **Table B13.~~3~~4.4-1**	**2** Where the examinations specified in **-1** are carried out on the representative unit, the following examinations are to be carried out on the rest of the units. (1) Outside of side shell plating above the water line and deck Visual inspection (2) Outside of side shell plating below the water line and bottom plating In-water visual inspection (by an appropriate method of the Society) and confirmation of the condition of cathodic protection measures and coating (3) Pump room and motor room Examinations specified in **-1(3)** above (4) Thickness measurement of structural members Unless specified otherwise, thickness measurements of structural members specified in **(a)**, **(b)**, **(c)** and **(d)** and uppermost part of structural members specified in **(g)** and **(i)** of **Table B13.3.4-1**	Reference correction

Guidance for the survey and construction of steel ships Part B B14 B14.2.3

Correction	Present	Note
The wording "items specified otherwise by the Society" in **14.2.3-1, Part B of the Rules** means surveys of the tests specified the relevant requirements in **2.1.4, Part B of the Rules** and **14.2.4-2, Part B of the Rules,** and the wording "the Society may approve other survey methods which it considers to be appropriate" means to be in accordance with **B2.1.4-1(2)**.	The wording "items specified otherwise by the Society" in **14.2.3-1, Part B of the Rules** means surveys of the tests specified the relevant requirements in **2.1.4, Part B of the Rules** and **14.2.4-2**, and the wording "the Society may approve other survey methods which it considers to be appropriate" means to be in accordance with **B2.1.4-1(2)**.	Wording correction

Guidance for the survey and construction of steel ships Part B B15 B15.2.3-1

Correction	Present	Note
1 For the performance tests of the work-related installations of work-ships related to **15.2.3-1(1), Part B of the Rules**, the following tests are to be carried out. In cases where it is impractical to carry out such tests on board ship, they may be replaced with examinations carried out at the place of manufacture in the presence of a Surveyor. (1) Vessels engaged in towing operations (a) Confirmation that towing equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that towing equipment works well (2) Fire Fighting Vessels (a) Confirmation that fire fighting equipment is installed according to approved plans showing the arrangements of such equipment (b) Fire fighting equipment i) Water monitor systems Confirmation that the range of each monitor is more than that specified in **Table O6.4.2, Part O of the Guidance** in cases where all fixed water monitors are in simultaneous use ii) Hoses and nozzles for fire fighting Confirmation that water jet flows are more than 12*m* iii) Mobile high expansion foam generators Confirmation that mobile high expansion foam generators work well iv) Foam monitor systems Confirmation that the height of foam flow with all fixed foam monitors in simultaneous use at maximum foam generation is more than 15*m*	**1** For the performance tests of the work-related installations of work-ships related to **15.2.3-1(1), Part B of the Rules**, the following tests are to be carried out. In cases where it is impractical to carry out such tests on board ship, they may be replaced with examinations carried out at the place of manufacture in the presence of a Surveyor. (1) Vessels engaged in towing operations (a) Confirmation that towing equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that towing equipment works well (2) Fire Fighting Vessels (a) Confirmation that fire fighting equipment is installed according to approved plans showing the arrangements of such equipment (b) Fire fighting equipment i) Water monitor systems Confirmation that the range of each monitor is more than that specified in **Table O6.4.2** in cases where all fixed water monitors are in simultaneous use ii) Hoses and nozzles for fire fighting Confirmation that water jet flows are more than 12*m* iii) Mobile high expansion foam generators Confirmation that mobile high expansion foam generators work well iv) Foam monitor systems Confirmation that the height of foam flow with all fixed foam monitors in simultaneous use at maximum foam generation is more than 15*m*	Wording correction

v) Water-spray systems Confirmation that water-spray systems work well (3) Anchor handling vessels (a) Confirmation that anchor handling equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that anchor handling equipment works well (4) Vessels engaged in laying objects on the seabed (a) Confirmation that laying equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that laying equipment works well	v) Water-spray systems Confirmation that water-spray systems work well (3) Anchor handling vessels (a) Confirmation that anchor handling equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that anchor handling equipment works well (4) Vessels engaged in laying objects on the seabed (a) Confirmation that laying equipment is installed according to approved plans showing the arrangements of such equipment (b) Confirmation that laying equipment works well	

Guidance for the survey and construction of steel ships Part C C1 C1.1.7-1

Correction	Present	Note
1 Where high tensile steel are used, the construction and scantlings are to be determined in accordance with **Annex C1.1.7-1** “**GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS**”.	**1** Where high tensile steel are used, the construction and scantlings are to be determined in accordance with **Annex C1.1.7** “**GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS**”.	Reference correction

Guidance for the survey and construction of steel ships Part C C1 C1.1.11-1

Correction	Present	Note
1 The ships referred to as “container carriers and other than ships with similar hatch openings configuration” stated in the row for Strength deck at cargo hatch corner in the Deck Plating sections of **Table C1.1** and **Table C1.2, Part C of the Rules**, are ships which have hatch openings over 0.7*B* in width at the midship part.	**1** The ships referred to as “container carriers and other than ships with similar hatch openings configuration” stated in the row for Strength deck at cargo hatch corner in the Deck Plating sections of **Table C1.1** and **C1.2, Part C of the Rules**, are ships which have hatch openings over 0.7*B* in width at the midship part.	Wording correction

Guidance for the survey and construction of steel ships Part C C1 C1.1.11-4

Correction	Present	Note
4 The bilge strake prescribed in Note 4 of **Table C1.1** and **Table C1.2, Part C of the Rules** means a single strake of the bilge keel in the longitudinal direction or where there is no bilge keel, a single strake on the line extending longitudinally forward and afterward of the bilge keel.	**4** The bilge strake prescribed in Note 4 of **Table C1.1** and **C1.2, Part C of the Rules** means a single strake of the bilge keel in the longitudinal direction or where there is no bilge keel, a single strake on the line extending longitudinally forward and afterward of the bilge keel.	Wording correction

Guidance for the survey and construction of steel ships Part C C1 C1.1.11-5

Correction	Present	Note
5 Application of steels mentioned in Note 5 of ~~**Tables**~~**Table C1.1** and **Table C1.2, Part C of the Rules** is to be in accordance with **Table C1.1.11-2**.	**5** Application of steels mentioned in Note 5 of **Tables C1.1** and **C1.2, Part C of the Rules** is to be in accordance with **Table C1.1.11-2**.	Wording correction

Guidance for the survey and construction of steel ships Part C C3 C3.4.1-4

Correction	Present	Note
4 Method of evaluating moments and forces (Type *D* rudders with 2-conjugate elastic support) For Type *D* rudders with 2-conjugate elastic supports by rudder horns, the method of evaluating moments and forces is to be as in **(1)** and **(2)** below. (1) General data K_{11}, K_{22}, K_{12}: Rudder horn compliance constants calculated for rudder horn with 2-conjugate elastic supports (**Fig. C3.4.1-7**). The 2-conjugate elastic supports are defined in terms of horizontal displacements, y_i, by the following equations: at the lower rudder horn bearing: $y_1 = - K_{12} B_2 - K_{22} B_1$ at the upper rudder horn bearing: $y_2 = - K_{11} B_2 - K_{12} B_1$ Where y_1, y_2 : Horizontal displacements (*m*) at the lower and upper rudder horn bearings, respectively B_1, B_2 : Horizontal support forces (*kN*) at the lower and upper rudder horn bearings, respectively K_{11}, K_{22}, K_{12} : Obtained (*m/kN*) from the following formulae: $K_{11} = 1.3 \cdot \frac{\lambda^3}{3EI_{1h}} + \frac{e^2\lambda}{GI_{th}}$	**4** Method of evaluating moments and forces (Type *D* rudders with 2-conjugate elastic support) For Type *D* rudders with 2-conjugate elastic supports by rudder horns, the method of evaluating moments and forces is to be as in **(1)** and **(2)** below. (1) General data K_{11}, K_{22}, K_{12}: Rudder horn compliance constants calculated for rudder horn with 2-conjugate elastic supports (**Fig. C3.4.1-7**). The 2-conjugate elastic supports are defined in terms of horizontal displacements, y_i, by the following equations: at the lower rudder horn bearing: $y_1 = - K_{12} B_2 - K_{22} B_1$ at the upper rudder horn bearing: $y_2 = - K_{11} B_2 - K_{12} B_1$ Where y_1, y_2 : Horizontal displacements (*m*) at the lower and upper rudder horn bearings, respectively B_1, B_2 : Horizontal support forces (*kN*) at the lower and upper rudder horn bearings, respectively K_{11}, K_{22}, K_{12} : Obtained (*m/kN*) from the following formulae: $K_{11} = 1.3 \cdot \frac{\lambda^3}{3EI_{1h}} + \frac{e^2\lambda}{GI_{th}}$	

$K_{12} = 1.3\left[\frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{2EI_{1h}}\right] + \frac{e^2\lambda}{GI_{th}}$ $K_{22} = 1.3\left[\frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{(d-\lambda)^3}{3EI_{2h}}\right] + \frac{e^2 d}{GI_{th}}$ d : Height of the rudder horn (m) defined in **Fig. C3.4.1-7**. This value is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the lower rudder horn pintle λ : Length (m) as defined in **Fig. C3.4.1-7**. This length is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the upper rudder horn bearing. For λ = 0, the above formulae converge to those of spring constant Z for a rudder horn with 1-elastic support, and assuming a hollow cross section for this part e : Rudder-horn torsion lever (m) as defined in **Fig. C3.4.1-7** (value taken at $z = d/2$) I_{1h}: Moment of inertia of rudder horn about the x axis (m^4) for the region above the upper rudder horn bearing. Note that I_{1h} is an average value over the length λ (see **Fig. C3.4.1-7**) I_{2h}: Moment of inertia of rudder horn about the x axis (m^4) for the region between the upper and lower rudder horn bearings. Note that I_{2h} is an average	$K_{12} = 1.3\left[\frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{2EI_{1h}}\right] + \frac{e^2\lambda}{GI_{th}}$ $K_{22} = 1.3\left[\frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{(d-\lambda)^3}{3EI_{2h}}\right] + \frac{e^2 d}{GI_{th}}$ d : Height of the rudder horn (m) defined in **Fig. C3.4.1-7**. This value is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the lower rudder horn pintle λ : Length (m) as defined in **Fig. C3.4.1-7**. This length is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the upper rudder horn bearing. For λ = 0, the above formulae converge to those of spring constant Z for a rudder horn with 1-elastic support, and assuming a hollow cross section for this part e : Rudder-horn torsion lever (m) as defined in **Fig. C3.4.1-7** (value taken at $z = d/2$) I_{1h}: Moment of inertia of rudder horn about the x axis (m^4) for the region above the upper rudder horn bearing. Note that I_{1h} is an average value over the length λ (see **Fig. C3.4.1-7**) I_{2h}: Moment of inertia of rudder horn about the x axis (m^4) for the region between the upper and lower rudder horn bearings. Note that I_{2h} is an average	

value over the length $d - \lambda$ (see **Fig. C3.4.1-7**) I_{th} : Torsional stiffness factor of the rudder horn (m^4) For any thin wall closed section $I_{th} = \frac{4F_T^2}{\sum_i \frac{u_i}{t_i}}$ F_T: Mean of areas enclosed by outer and inner boundaries of the thin walled section of rudder horn (m^2) u_i : Length (mm) of the individual plates forming the mean horn sectional area t_i : Thickness (mm) of the individual plates mentioned above. Note that the I_{th} value is taken as an average value, valid over the rudder horn height. (2) Direct calculation The standard data to be used for direct calculation are as follows: Load acting on rudder body $P_{R10} = \frac{F_{R2}}{1000l_{10}}$ (kN/m) $P_{R20} = \frac{F_{R1}}{1000l_{20}}$ (kN/m) F_R, F_{R1}, F_{R2} : As defined in **3.3.2, Part C of the Rules**	value over the length $d - \lambda$ (see **Fig. C3.4.1-7**) I_{th} : Torsional stiffness factor of the rudder horn (m^4) For any thin wall closed section $I_{th} = \frac{4F_T^2}{\sum_i \frac{u_i}{t_i}}$ F_T: Mean of areas enclosed by outer and inner boundaries of the thin walled section of rudder horn (m^2) u_i : Length (mm) of the individual plates forming the mean horn sectional area t_i : Thickness (mm) of the individual plates mentioned above. Note that the I_{th} value is taken as an average value, valid over the rudder horn height. (2) Direct calculation The standard data to be used for direct calculation are as follows: Load acting on rudder body $P_{R10} = \frac{F_{R2}}{1000l_{10}}$ (kN/m) $P_{R20} = \frac{F_{R1}}{1000l_{20}}$ (kN/m) F_R, F_{R1}, F_{R2} : As defined in **3.3.2**	Wording correction

Guidance for the survey and construction of steel ships Part C C3 C3.8.3-2

Correction	Present	Note
2 In the application of **3.8.3-5, Part C** of the Rules, the scantlings of the key are as follows in cases where all rudder torque is considered to be transmitted by the key at the couplings. (1) The shear area A_k of keys is not to be less than: $A_k = \frac{30T_RK_k}{d_k}$ (mm^2) Where: d_k: Rudder stock diameter (mm) at the mid-point of length of the key K_k: Material factor for the key as given in **3.1.2, Part C** of the Rules T_R: Rudder torque obtained from **3.3, Part C** of the Rules (2) The abutting surface area A_c between the key and rudder stock or between the key and rudder body, respectively, is not to be less than: $A_c = \frac{10T_RK_{\max}}{d_k}$ (mm^2) Where: $K_{\max}$: The greater of the material factors (given in **3.1.2, Part C** of the Rules) between the rudder stock and the key it is in contact with or the greater of the material factors between the rudder body and the key it is in contact with d_k and T_R: As specified in **(1)**	**2** In the application of **3.8.3-5**, the scantlings of the key are as follows in cases where all rudder torque is considered to be transmitted by the key at the couplings. (1) The shear area A_k of keys is not to be less than: $A_k = \frac{30T_RK_k}{d_k}$ (mm^2) Where: d_k: Rudder stock diameter (mm) at the mid-point of length of the key K_k: Material factor for the key as given in **3.1.2, Part C** of the Rules T_R: Rudder torque obtained from **3.3, Part C** of the Rules (2) The abutting surface area A_c between the key and rudder stock or between the key and rudder body, respectively, is not to be less than: $A_c = \frac{10T_RK_{\max}}{d_k}$ (mm^2) Where: $K_{\max}$: The greater of the material factors (given in **3.1.2, Part C** of the Rules) between the rudder stock and the key it is in contact with or the greater of the material factors between the rudder body and the key it is in contact with d_k and T_R: As specified in **(1)**	Wording correction

Guidance for the survey and construction of steel ships Part C C3 C3.9.2-4

Correction	Present	Note
4 For the reaction force in bearing *B* specified in **3.9.2-2**, **Part C** of the Rules, for example, B_1 defined in **Fig. C3.4.1-4** is used for Type *D* rudders.	**4** For the reaction force in bearing *B* specified in **3.9.2-2**, for example, B_1 defined in **Fig. C3.4.1-4** is used for Type *D* rudders.	Wording correction

Guidance for the survey and construction of steel ships Part C C6 C6.1.1-7

Correction	Present	Note
7 With respect to the provisions of **6.1.1-7, Part C** of the Rules, where the ratio of cargo weight per unit area (kN/m^2) of the inner bottom plating to *d* is less than 5.40, double bottom structures are to be in accordance with **C6.2.3-1**, **C6.3.2-1**, **C6.5.1-2** and **C6.5.~~6~~5-1**. Where cargo loads can not be treated as evenly distributed loads, scantlings of double bottom structures are to be determined by taking account of load distribution for particular cargoes. Where concentrated loads act on specific points of double bottoms, scantlings of centre girders, side girders, floors, inner bottom plates and bottom plates and their stiffeners are to be determined by an appropriate strength assessment such as direct calculations.	**7** With respect to the provisions of **6.1.1-7, Part C** of the Rules, where the ratio of cargo weight per unit area (kN/m^2) of the inner bottom plating to *d* is less than 5.40, double bottom structures are to be in accordance with **C6.2.3-1**, **C6.3.2-1**, **C6.5.1-2** and **C6.5.6-1**. Where cargo loads can not be treated as evenly distributed loads, scantlings of double bottom structures are to be determined by taking account of load distribution for particular cargoes. Where concentrated loads act on specific points of double bottoms, scantlings of centre girders, side girders, floors, inner bottom plates and bottom plates and their stiffeners are to be determined by an appropriate strength assessment such as direct calculations.	Reference correction

Guidance for the survey and construction of steel ships Part C C10 C10.9.1-1

Correction	Present	Note
1 The section modulus of beams of decks loaded with wheeled vehicles (hereinafter referred to as "car decks") is not to be less than that obtained from the following formula. Where the span length or moment of inertia changes along the continuous beam, the scantlings of the beam are to be determined by direct strength calculation as specified in **10.9.1-2, Part C of the Rules**. C_1C_2M (cm^3) Where: C_1 : Coefficient determined as follows: C_1 : 1.0 for $b/S \leq 0.8$ C_1 : 1.25-0.31 b/S for b/S >0.8 Where: S : Beam spacing (m) b : Length (m) of wheel print measured at right angle to beams (*See* **Fig. C10.9.1-1**) For vehicles with ordinary pneumatic tires, values in **Table C10.9.1-1** may be used. C_2 : Coefficient determined from **Table C10.9.1-2** M : M_1, M_2 and M_{3j} obtained from the following formulae, whichever is the greatest ($kN \cdot m$): $M_1=\frac{1}{15}\left[\sum_{i=1}^{N_I}4P_{Ii}\alpha_{Ii}\left\{1-\left(\frac{\alpha_{Ii}}{l}\right)^2\right\}+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{l}\right)\left(7-5\frac{\alpha_{IIj}}{l}\right)-\sum_{k=1}^{N_{III}}P_{IIIk}(l-\alpha_{IIIk})\left\{1-\left(\frac{l-\alpha_{IIIk}}{l}\right)^2\right\}\right]$	**1** The section modulus of beams of decks loaded with wheeled vehicles (hereinafter referred to as "car decks") is not to be less than that obtained from the following formula. Where the span length or moment of inertia changes along the continuous beam, the scantlings of the beam are to be determined by direct strength calculation as specified in **10.9.1-2**. C_1C_2M (cm^3) Where: C_1 : Coefficient determined as follows: C_1 : 1.0 for $b/S \leq 0.8$ C_1 : 1.25-0.31 b/S for b/S >0.8 Where: S : Beam spacing (m) b : Length (m) of wheel print measured at right angle to beams (*See* **Fig. C10.9.1-1**) For vehicles with ordinary pneumatic tires, values in **Table C10.9.1-1** may be used. C_2 : Coefficient determined from **Table C10.9.1-2** M : M_1, M_2 and M_{3j} obtained from the following formulae, whichever is the greatest ($kN \cdot m$): $M_1=\frac{1}{15}\left[\sum_{i=1}^{N_I}4P_{Ii}\alpha_{Ii}\left\{1-\left(\frac{\alpha_{Ii}}{l}\right)^2\right\}+\sum_{j=1}^{N_{II}}P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{l}\right)\left(7-5\frac{\alpha_{IIj}}{l}\right)-\sum_{k=1}^{N_{III}}P_{IIIk}(l-\alpha_{IIIk})\left\{1-\left(\frac{l-\alpha_{IIIk}}{l}\right)^2\right\}\right]$	Wording correction

$M_2 = \frac{1}{15}\left[-\sum_{i=1}^{N_I} P_{Ii}\alpha_{Ii}\left\{1-\left(\frac{\alpha_{Ii}}{l}\right)^2\right\} + \sum_{j=1}^{N_{II}} P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{l}\right)\left(2+5\frac{\alpha_{IIj}}{l}\right) + \sum_{k=1}^{N_{III}} 4P_{IIIk}(l-\alpha_{IIIk})\left\{1 - \left(\frac{l-\alpha_{IIIk}}{l}\right)^2\right\}\right]$ $M_{3j} = \left\|R_{II}\alpha_{IIj} - \sum_{r=0}^{j-1} P_{IIr}(\alpha_{IIj}-\alpha_{IIr}) - \left(\frac{M_2-M_1}{l}\right)\alpha_{IIj} - M_1\right\|$ Where: $P_{II0} = 0, \alpha_{II0} = 0$ l: Span (*m*) of beam between support points P_{Ii}, P_{IIj} and P_{IIIk}: Maximum design wheel load (*kN*) between support points Where the maximum design wheel loads between support points are given in tons, the values of P_{Ii}, P_{IIj} and P_{IIIk} should be multiplied by 9.81 to convert them into *kN*. Subscript "I_i" means the *i*th load point from left end of the *I*th beam. Subscript "II_j (or II_r)" means the *j*th (or *r*th) load point from left end of the *II*th beam. Subscript "III_k" means the *k*th load point from left end of the *III*th beam. (*See* **Fig. C10.9.1-2**)	$M_2 = \frac{1}{15}\left[-\sum_{i=1}^{N_I} P_{Ii}\alpha_{Ii}\left\{1-\left(\frac{\alpha_{Ii}}{l}\right)^2\right\} + \sum_{j=1}^{N_{II}} P_{IIj}\alpha_{IIj}\left(1-\frac{\alpha_{IIj}}{l}\right)\left(2+5\frac{\alpha_{IIj}}{l}\right) + \sum_{k=1}^{N_{III}} 4P_{IIIk}(l-\alpha_{IIIk})\left\{1 - \left(\frac{l-\alpha_{IIIk}}{l}\right)^2\right\}\right]$ $M_{3j} = \left\|R_{II}\alpha_{IIj} - \sum_{r=0}^{j-1} P_{IIr}(\alpha_{IIj}-\alpha_{IIr}) - \left(\frac{M_2-M_1}{l}\right)\alpha_{IIj} - M_1\right\|$ Where: $P_{II0} = 0, \alpha_{II0} = 0$ l: Span (*m*) of beam between support points P_{Ii}, P_{IIj} and P_{IIIk}: Maximum design wheel load (*kN*) between support points Where the maximum design wheel loads between support points are given in tons, the values of P_{Ii}, P_{IIj} and P_{IIIk} should be multiplied by 9.81 to convert them into *kN*. Subscript "I_i" means the *i*th load point from left end of the *I*th beam. Subscript "II_j (or II_r)" means the *j*th (or *r*th) load point from left end of the *II*th beam. Subscript "III_k" means the *k*th load point from left end of the *III*th beam. (*See* **Fig. C10.9.1-2**)	

$\alpha_{Ii}, \alpha_{IIj}$ and α_{IIIk}: Distance (*m*) from each support point to the point of action of wheel load (*See* **Fig. C10.9.1-2**), when wheels are so arranged that *M* may be at its maximum value N_I, N_{II} and N_{III} : Number of wheel loads between each span R_{II} : The value obtained from following the formula $R_{II} = \frac{1}{l}\sum_{j=1}^{N_{II}} P_{IIj}(l - \alpha_{IIj})$	$\alpha_{Ii}, \alpha_{IIj}$ and α_{IIIk}: Distance (*m*) from each support point to the point of action of wheel load (*See* **Fig. C10.9.1-2**), when wheels are so arranged that *M* may be at its maximum value N_I, N_{II} and N_{III} : Number of wheel loads between each span R_{II} : The value obtained from following the formula $R_{II} = \frac{1}{l}\sum_{j=1}^{N_{II}} P_{IIj}(l - \alpha_{IIj})$	

Guidance for the survey and construction of steel ships Part C C10 Table C10.9.2-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table C10.9.2-1 Method of Fillet Weld$^{(*4)}$
<table>
<tr><th></th><th>Deck panels on which vehicular traffic is frequent$^{(*1)}$</th><th>Panels other than those specified in the left column</th></tr>
<tr><td>General type</td><td>F2 (Both sides or One side)</td><td>F4 or F2 (One side)</td></tr>
<tr><td>Channel type$^{(*2)}$</td><td>F2 (Both sides)</td><td>F4</td></tr>
<tr><td>Channel type$^{(*3)}$</td><td>F2 (Web side of stiffener flange)</td><td>F4 (Web side of stiffener flange)</td></tr>
</table>
Notes:
(∗ 1): Deck panels which are subject to the dynamic load in the vicinity of the ramp way and is on the route taken by vehicles when moving between decks
(∗ 2): Channel type stiffeners as shown in **Fig. C10.9.2-1**, which are joined to the deck with spot-welds or intermittent welds
(∗ 3): Channel type stiffeners as shown in **Fig. C10.9.2-2**, which are joined to the deck with a full penetration weld
(∗ 4): “F2” and “F4” in this table is as specified in **Table C1.4, Part C of the Rules**
</td>
<td>
Table C10.9.2-1 Method of Fillet Weld$^{(*4)}$
<table>
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Notes:
(∗ 1): Deck panels which are subject to the dynamic load in the vicinity of the ramp way and is on the route taken by vehicles when moving between decks
(∗ 2): Channel type stiffeners as shown in **Fig.C10.9.2-1**, which are joined to the deck with spot-welds or intermittent welds
(∗ 3): Channel type stiffeners as shown in **Fig.C10.9.2-2**, which are joined to the deck with a full penetration weld
(∗ 4): “F2” and “F4” in this table is as specified in **Table C1.4**
</td>
<td>Wording correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part C C15 C15.2.2

Correction	Present	Note
"Where the Society considers that the application of requirements of **-1** above is inappropriate" stated in **15.2.2-2, Part C of the Rules** refers to cases in which the bending strength for the locations categorised in the following **(1)** to **(3)** is examined. In these cases, the bending strength is to be in accordance with the requirement specified in **15.2.1-1, Part C** of the Rules by using the coefficient C_2 obtained from the dotted line in **Fig. C15.2, Part C** of the Rules. (1) Locations categorized in the following **(a)** to **(d)** for all ships: (a) In way of the forward end of the engine room (b) In way of the forward end of the foremost cargo hold (c) At any locations where there are significant changes in the hull cross-section (d) At any locations where there are changes in the framing system (2) In addition to the locations specified in **-(1)** above, locations categorized in the following **(a)** to **(c)** for ships with large deck openings. However, locations categorized in **(b)** and **(c)** are for only those ships with cargo holds aft of the superstructure, deckhouse or engine room. (a) At or near to the aft and forward quarter length positions (b) In way of the aft end of the aft-most holds (c) Aft end of the deckhouse or engine room (3) In addition to the locations specified in **-(1)** and **-(2)** above, locations where deemed necessary by the Society for those ships categorised in the following **(a)** and **(b):** (a) Ships with a C_b of less than 0.7	"Where the Society considers that the application of requirements of **-1** above is inappropriate" stated in **15.2.2-2**, **Part C** of the Rules refers to cases in which the bending strength for the locations categorised in the following **(1)** to **(3)** is examined. In these cases, the bending strength is to be in accordance with the requirement specified in **15.2.1-1**, **Part C** of the Rules by using the coefficient C_2 obtained from the dotted line in **Fig. C15.2**. (1) Locations categorized in the following **(a)** to **(d)** for all ships: (a) In way of the forward end of the engine room (b) In way of the forward end of the foremost cargo hold (c) At any locations where there are significant changes in the hull cross-section (d) At any locations where there are changes in the framing system (2) In addition to the locations specified in **-1** above, locations categorized in the following **(a)** to **(c)** for ships with large deck openings. However, locations categorized in **(b)** and **(c)** are for only those ships with cargo holds aft of the superstructure, deckhouse or engine room. (a) At or near to the aft and forward quarter length positions (b) In way of the aft end of the aft-most holds (c) Aft end of the deckhouse or engine room (3) In addition to the locations specified in **-1** and **-2** above, locations where deemed necessary by the Society for those ships categorised in the following **(a)** and **(b):** (a) Ships with a C_b of less than 0.7	Wording correction

(b) Ships whose longitudinal bending moments in still water at parts other than the midship part are equal to or greater than that at the midship part	(b) Ships whose longitudinal bending moments in still water at parts other than the midship part are equal to or greater than that at the midship part	

Guidance for the survey and construction of steel ships Part C C15 C15.3.2

Correction	Present	Note
Where Type *C*, Type *D* or Type *E* ships specified in **Fig. C15.6, Part C** of the Rules are provided with bilge hoppers in the double hull, the values of α_2 and *R* specified in **~~C15~~15.3.2 in Part C** of the Rules are to be construed as those tabulated in **Table C15.3.2-1** in applying the rules, except where the Society deems otherwise. However, the thickness of the side shell plating and slant plates forming bilge hoppers is not to be less than 1.2 *times* the values determined by the requirements of the rules.	Where Type *C*, Type *D* or Type *E* ships specified in **Fig. C15.6, Part C** of the Rules are provided with bilge hoppers in the double hull, the values of α_2 and *R* specified in **C15.3.2 in Part C** of the Rules are to be construed as those tabulated in **Table C15.3.2-1** in applying the rules, except where the Society deems otherwise. However, the thickness of the side shell plating and slant plates forming bilge hoppers is not to be less than 1.2 *times* the values determined by the requirements of the rules.	Wording correction

Guidance for the survey and construction of steel ships Part C C23 C23.7.2-4

Correction	Present	Note
4 For gas carriers, where gangways are provided sufficiently high above the freeboard deck or where permanently constructed arrangements achieve an equivalent level of safety, the Society may approve modifications to the provisions of **-1** above. "Sufficiently high above the freeboard deck" means a vertical height of more than 3 times the standard superstructure height specified in **Table V2.2.1-1**~~.~~, **Part V of the Guidance**.	**4** For gas carriers, where gangways are provided sufficiently high above the freeboard deck or where permanently constructed arrangements achieve an equivalent level of safety, the Society may approve modifications to the provisions of **-1** above. "Sufficiently high above the freeboard deck" means a vertical height of more than 3 times the standard superstructure height specified in **Table V2.2.1-1**.	Wording correction

Guidance for the survey and construction of steel ships Part C C23 Table C23.7.2-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table C23.7.2-1 Protection of Crew on Exposed Freeboard Deck or Raised Quarter Deck for Tankers
<table>
<tr><th>Location of access in Ship</th><th>Assigned Summer Freeboard</th><th>Acceptable arrangements according to type of freeboard assigned:</th></tr>
<tr><td rowspan="2">2.1 Access to Bow
2.1.1 Between poop and bow
2.1.2 Between a deckhouse containing living accommodation or navigating equipment or both, and bow
2.1.3 In the case of a flush deck vessel, between crew accommodation and the forward ends of ship</td><td>$\leq (Af + Hs)*$</td><td>a
e
f 1)
f 5)</td></tr>
<tr><td>$> (Af + Hs)*$</td><td>a
e
f 1)
f 2)</td></tr>
<tr><td>2.2 Access to After End
2.2.1 In the case of a flush deck vessel, between crew accommodation and the after end of ship</td><td colspan="2">As required in 1.2.4 of Table C23.7.1-1 for other types of ships</td></tr>
</table>
Notes:
Af: Minimum summer freeboard calculated as type A ship regardless of the type of freeboard actually assigned
Hs: Standard height of superstructure as defined in Table V2.2.1-1~~.~~, Part V of the Guidance.
</td>
<td>
Table C23.7.2-1 Protection of Crew on Exposed Freeboard Deck or Raised Quarter Deck for Tankers
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f 5)</td></tr>
<tr><td>$> (Af + Hs)*$</td><td>a
e
f 1)
f 2)</td></tr>
<tr><td>2.2 Access to After End
2.2.1 In the case of a flush deck vessel, between crew accommodation and the after end of ship</td><td colspan="2">As required in 1.2.4 of Table C23.7.1-1 for other types of ships</td></tr>
</table>
Notes:
Af: Minimum summer freeboard calculated as type A ship regardless of the type of freeboard actually assigned
Hs: Standard height of superstructure as defined in Table V2.2.1-1.
</td>
<td>Wording correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part C C27 C27.3.2-1

Correction	Present	Note
1 “Emergency towing arrangements approved by the Society” specified in **27.3.2-1, Part C** of the Rules refer to emergency towing arrangements that comply with the requirements in **C27.3.2-2** to **-13** and the requirements specified in the following **(1)** or **(2)**. (1) Where a prototype of the emergency towing arrangement is arranged in the same manner as it is to be installed on board the ship, the prototype test is to be carried out in accordance with the requirements specified in **Chapter 6, Part 2 of** “**the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**” and a production test of individual components is to be carried out in accordance with the same requirements. (2) Emergency towing arrangements are to comply with the requirements specified in the following **(a)** to **(c)**. (a) Loose gear such as chafing gear or towing pennants among the components listed in **Table C27.3.2-1** and **Table C27.3.2-2** are to be tested according to the requirements of **Part K** or **Part L** of the Rules or other standards deemed appropriate by the Society. (b) Fixed gear such as strong points and fairleads among the components listed in **Table C27.3.2-1** are to be tested according to the requirements of **Part K** or **Part L** of the Rules or other standards deemed appropriate by the Society. A strength analysis of the foundations of these components and associated supporting structures including reinforced members is to be carried out according to the conditions specified in **C27.3.2-3** and confirmation that these components have	**1** “Emergency towing arrangements approved by the Society” specified in **27.3.2-1, Part C** of the Rules refer to emergency towing arrangements that comply with the requirements in **C27.3.2-2** to **-13** and the requirements specified in the following **(1)** or **(2)**. (1) Where a prototype of the emergency towing arrangement is arranged in the same manner as it is to be installed on board the ship, the prototype test is to be carried out in accordance with the requirements specified in **Chapter 6, Part 2 of “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**” and a production test of individual components is to be carried out in accordance with the same requirements. (2) Emergency towing arrangements are to comply with the requirements specified in the following **(a)** to **(c)**. (a) Loose gear such as chafing gear or towing pennants among the components listed in **Table C27.3.2-1 and Table C27.3.2-2** are to be tested according to the requirements of **Part K or Part L** of the Rules or other standards deemed appropriate by the Society. (b) Fixed gear such as strong points and fairleads among the components listed in **Table C27.3.2-1** are to be tested according to the requirements of **Part K or Part L** of the Rules or other standards deemed appropriate by the Society. A strength analysis of the foundations of these components and associated supporting structures including reinforced members is to be carried out according to the conditions specified in **C27.3.2-3** and confirmation that these components have	Wording correction

adequate strength corresponding to the type of emergency towing arrangements is to be made. Where the structural configuration of the arrangement is of a particularly complex or novel nature that a strength analysis cannot be satisfactorily carried out, a suitable load test deemed appropriate by the Society is to be carried out. (c) After the emergency towing arrangements are installed on board, it is to be demonstrated that the requirements specified in **C27.3.2-11**, **C27.3.2-12** and **C27.3.2-13** are satisfied.	adequate strength corresponding to the type of emergency towing arrangements is to be made. Where the structural configuration of the arrangement is of a particularly complex or novel nature that a strength analysis cannot be satisfactorily carried out, a suitable load test deemed appropriate by the Society is to be carried out. (c) After the emergency towing arrangements are installed on board, it is to be demonstrated that the requirements specified in **C27.3.2-11, C27.3.2-12 and C27.3.2-13** are satisfied.	

Guidance for the survey and construction of steel ships Part C C29 C29.6.2-1

Correction	Present	Note
1 General (1) Where scantlings of girders (including plate members connected thereto) are determined by direct strength calculation, the necessary documents and data on the calculation method are to be submitted beforehand to the Society for approval. (2) Except where specifically provided for in this part, strength calculations are to be in accordance with **Annex C1.1.22-1** “Guidance for Direct Strength Calculation”.	**1** General (1) Where scantlings of girders (including plate members connected thereto) are determined by direct strength calculation, the necessary documents and data on the calculation method are to be submitted beforehand to the Society for approval. (2) Except where specifically provided for in this part, strength calculations are to be in accordance with **Annex C1.1.22-1 Guidance for Direct Strength Calculation**.	Wording correction

Guidance for the survey and construction of steel ships Part C C31 C31.5.2

Correction	Present	Note
With respect to the provisions of **31.5.2-5, Part C** of the Rules, construction of the upper stools is to meet the following, unless the construction is examined by an adequate way such as direct calculation using $1/2+1+1+1/2$ holds models. $$\sigma = \left\|\left(\frac{wB_{CD}^2}{8} - M\right)\frac{10^3}{Z_{DK}} + \frac{F_{IB}-F_{SS}}{l_{DK}t_{DK}}\right\| \le \frac{145}{K}\ (N/mm^2)$$ $$\tau = \left\|\frac{wB_{CD}}{4\left(h_{ST}(t_{ST}-2.5)\right)}\right\| \le \frac{70}{K}\ (N/mm^2)$$ $$w = \frac{(a_1-a_3)a_5}{a_1a_4-a_2a_3}w_1\ (kN/m)$$ $$w_1 = \frac{({\alpha_{IB}}^3-4{\alpha_{IB}}^2+8)}{5}\frac{F}{B}\ (kN/m)$$ $$w_2 = \frac{(a_2-a_4)a_5}{a_2a_3-a_1a_4}w_1\ (kN/m)$$ $$a_1 = \frac{(1-\alpha_{CD})^2}{(1+\alpha_{CD})(5-{\alpha_{CD}}^2)}\left((5+7\alpha_{CD})+2(1-\alpha_{CD})\frac{(1-\alpha_{CD})(4\beta_1-3\beta_2)+4\alpha_{CD}\beta_1\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{TST}}\right)\right)$$ $$a_2 = \frac{2\alpha_{CD}}{(1+\alpha_{CD})(5-{\alpha_{CD}}^2)}\left(4(1+\alpha_{CD}-{\alpha_{CD}}^2)+(1-\alpha_{CD})\frac{(1-\alpha_{CD})^2+2\alpha_{CD}(2-3\alpha_{CD})\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{TST}}\right)\right)$$ $$a_3 = \frac{6(1-\alpha_{CD})^2}{(6-\alpha_{CD}^2)}\left(1+\frac{4\alpha_{CD}\beta_2}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{CD}}\right)\right)$$ $$a_4 = \frac{\alpha_{CD}}{(6-{\alpha_{CD}}^2)}\left(12-7\alpha_{CD}+\frac{(1-\alpha_{CD})(6-\alpha_{CD})+{\alpha_{CD}}^2\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{CD}}\right)\right)$$ $a_5 = \sqrt{\frac{I_{CD}}{I_{IB}}}$, however, a_5 does not need to be greater than 1.	With respect to the provisions of **31.5.2-5, Part C** of the Rules, construction of the upper stools is to meet the following, unless the construction is examined by an adequate way such as direct calculation using $1/2+1+1+1/2$ holds models. $$\sigma = \left\|\left(\frac{wB_{CD}^2}{8} - M\right)\frac{10^3}{Z_{DK}} + \frac{F_{IB}-F_{SS}}{l_{DK}t_{DK}}\right\| \le \frac{145}{K}\ (N/mm^2)$$ $$\tau = \left\|\frac{wB_{CD}}{4\left(h_{ST}(t_{ST}-2.5)\right)}\right\| \le \frac{70}{K}\ (N/mm^2)$$ $$w = \frac{(a_1-a_3)a_5}{a_1a_4-a_2a_3}w_1\ (kN/m)$$ $$w_1 = \frac{({\alpha_{IB}}^3-4{\alpha_{IB}}^2+8)}{5}\frac{F}{B}\ (kN/m)$$ $$w_2 = \frac{(a_2-a_4)a_5}{a_2a_3-a_1a_4}w_1\ (kN/m)$$ $$a_1 = \frac{(1-\alpha_{CD})^2}{(1+\alpha_{CD})(5-{\alpha_{CD}}^2)}\left((5+7\alpha_{CD})+2(1-\alpha_{CD})\frac{(1-\alpha_{CD})(4\beta_1-3\beta_2)+4\alpha_{CD}\beta_1\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{TST}}\right)\right)$$ $$a_2 = \frac{2\alpha_{CD}}{(1+\alpha_{CD})(5-{\alpha_{CD}}^2)}\left(4(1+\alpha_{CD}-{\alpha_{CD}}^2)+(1-\alpha_{CD})\frac{(1-\alpha_{CD})^2+2\alpha_{CD}(2-3\alpha_{CD})\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{TST}}\right)\right)$$ $$a_3 = \frac{6(1-\alpha_{CD})^2}{(6-\alpha_{CD}^2)}\left(1+\frac{4\alpha_{CD}\beta_2}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{CD}}\right)\right)$$ $$a_4 = \frac{\alpha_{CD}}{(6-{\alpha_{CD}}^2)}\left(12-7\alpha_{CD}+\frac{(1-\alpha_{CD})(6-\alpha_{CD})+{\alpha_{CD}}^2\left(\frac{I_{TST}}{I_{CD}}\right)}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(\frac{I_{IB}}{I_{CD}}\right)\right)$$ $a_5 = \sqrt{\frac{I_{CD}}{I_{IB}}}$, however, a_5 does not need to be greater than 1.	

$M=\frac{B^2}{24}\frac{-3(1-\alpha_{CD})^3\beta_2w_2+\alpha_{CD}\left(2{\alpha_{CD}}^2\left(\frac{I_{TST}}{I_{CD}}\right)-3(1-\alpha_{CD})^2\right)w}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}$ (*kN-m*) $F_{IB}=\frac{B^3}{8{h_{SH}}^2}\frac{I_{SH}}{I_{IB}}\left(2w_1-\left(2-\alpha_{CD}(3-{\alpha_{CD}}^2)\right)w_2-\alpha_{CD}(3-{\alpha_{CD}}^2)w\right)$ (*kN*) However, F_{IB} is not to be less than 0. $F_{SS}=5l_{Hold}(d+0.026L'-h_{SS})^2$ (*kN*) However, F_{SS} is to be 0 in loaded condition. β_1 and β_2 are to be as follows. (1) Where a bulkhead, a solid floor or a similar structure is provided in the same plane as the transverse bulkhead within the topside tank, β_1 is to be taken as $3/8$ and β_2 is to be taken as $1/3$. (2) Where a bulkhead, a solid floor or a similar structure is not provided in the same plane as the transverse bulkhead within the topside tank, β_1 and β_2 are to be the ratio of the horizontal distance between the inner end of the topside tank and the centre of the opening in the transverse ring within the topside tank, to the breadth of the topside tank. Z_{DK}: Section modulus (cm^3) of the upper stool structure about the ship longitudinal axis at deck side t_{DK} : The thickness (*mm*) of deck plating inside the line of openings l_{DK} : The length (*m*) of the deck inside the line of openings t_{ST} : The thickness (*mm*) of the sloping plating of upper stool h_{ST} : The height (*m*) of upper stool	$M=\frac{B^2}{24}\frac{-3(1-\alpha_{CD})^3\beta_2w_2+\alpha_{CD}\left(2{\alpha_{CD}}^2\left(\frac{I_{TST}}{I_{CD}}\right)-3(1-\alpha_{CD})^2\right)w}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}$ (*kN-m*) $F_{IB}=\frac{B^3}{8{h_{SH}}^2}\frac{I_{SH}}{I_{IB}}\left(2w_1-\left(2-\alpha_{CD}(3-{\alpha_{CD}}^2)\right)w_2-\alpha_{CD}(3-{\alpha_{CD}}^2)w\right)$ (*kN*) However, F_{IB} is not to be less than 0. $F_{SS}=5l_{Hold}(d+0.026L'-h_{SS})^2$ (*kN*) However, F_{SS} is to be 0 in loaded condition. β_1 and β_2 are to be as follows. (1) Where a bulkhead, a solid floor or a similar structure is provided in the same plane as the transverse bulkhead within the topside tank, β_1 is to be taken as $3/8$ and β_2 is to be taken as $1/3$. (2) Where a bulkhead, a solid floor or a similar structure is not provided in the same plane as the transverse bulkhead within the topside tank, β_1 and β_2 are to be the ratio of the horizontal distance between the inner end of the topside tank and the centre of the opening in the transverse ring within the topside tank, to the breadth of the topside tank. Z_{DK}: Section modulus (cm^3) of the upper stool structure about the ship longitudinal axis at deck side t_{DK} : The thickness (*mm*) of deck plating inside the line of openings l_{DK} : The length (*m*) of the deck inside the line of openings t_{ST} : The thickness (*mm*) of the sloping plating of upper stool h_{ST} : The height (*m*) of upper stool	

h_{SH} : The vertical distance (m) between the bottom of topside tank and the top of bilge hopper tank h_{SS} : The vertical distance (m) from the base line to the centre of the side structure between the topside tank and the bilge hopper tank l_{Hold}: The average length (m) of after and forward cargo holds of the transverse bulkhead F : As specified in **C31.5.1** (kN) However, where bottom pressure is greater than internal pressure such as those acting on the double bottoms of empty holds, F is to be corrected to a negative value. $\alpha_{IB} = {}^{B_{IB}}/_{B}$ $\alpha_{CD} = {}^{B_{CD}}/_{B}$ B_{IB} : The horizontal distance (m) between the inner end of bilge hopper tanks B_{CD} : The breadth (m) of the deck inside the line of openings I_{IB} : The moment of inertia (cm^4) of the double bottom structure and lower stool structure about the ship's longitudinal axis Only the part of the double bottom just under the lower stool needs to be taken into consideration. I_{TST}: The moment of inertia (cm^4) of the topside tank structure about the ship's longitudinal axis at the midpoint of the breadth of the topside tanks The deck plating and the sloping plating within the area 0.1 *times* the breadth of the	h_{SH} : The vertical distance (m) between the bottom of topside tank and the top of bilge hopper tank h_{SS} : The vertical distance (m) from the base line to the centre of the side structure between the topside tank and the bilge hopper tank l_{Hold}: The average length (m) of after and forward cargo holds of the transverse bulkhead F : As specified in **C31.5.1** (kN) However, where bottom pressure is greater than internal pressure such as those acting on the double bottoms of empty holds, F is to be corrected to a negative value. $\alpha_{IB} = {}^{B_{IB}}/_{B}$ $\alpha_{CD} = {}^{B_{CD}}/_{B}$ B_{IB} : The horizontal distance (m) between the inner end of bilge hopper tanks B_{CD} : The breadth (m) of the deck inside the line of openings I_{IB} : The moment of inertia (cm^4) of the double bottom structure and lower stool structure about the ship's longitudinal axis Only the part of the double bottom just under the lower stool needs to be taken into consideration. I_{TST}: The moment of inertia (cm^4) of the topside tank structure about the ship's longitudinal axis at the midpoint of the breadth of the topside tanks The deck plating and the sloping plating within the area 0.1 *times* the breadth of the	

topside tank forward and after the transverse bulkhead may be taken into consideration. I_{CD} : The moment of inertia (cm^4) of upper stool structure about the ship's longitudinal axis at the ship's centre line The deck plating within the area 0.1 *times* B_{CD} forward and after the transverse bulkhead may be taken into consideration. I_{SH} : The moment of inertia (cm^4) of side structure around the transverse bulkhead about the ship's longitudinal axis The side shell plating within the area 0.1 *times* h_{SH} forward and after the transverse bulkhead, a single strake of the bulkhead plating including plating deemed as its face plate, and the trunk construction may be taken into consideration. K : As specified in **1.2.1-2(2)** of **Annex C1.1.7-1** "GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS"	topside tank forward and after the transverse bulkhead may be taken into consideration. I_{CD} : The moment of inertia (cm^4) of upper stool structure about the ship's longitudinal axis at the ship's centre line The deck plating within the area 0.1 *times* B_{CD} forward and after the transverse bulkhead may be taken into consideration. I_{SH} : The moment of inertia (cm^4) of side structure around the transverse bulkhead about the ship's longitudinal axis The side shell plating within the area 0.1 *times* h_{SH} forward and after the transverse bulkhead, a single strake of the bulkhead plating including plating deemed as its face plate, and the trunk construction may be taken into consideration. K : As specified in **1.2.1-2(2) of Annex C1.1.7 "GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS"**	Reference correction

Guidance for the survey and construction of steel ships Part C C31 C31.5.2-1

Correction	Present	Note
1 The weight of the water in a flooded hold is to be calculated in accordance with ~~**C31A**~~**31A.5.2-2, Part C of the Rules**, at the water level of the equilibrium water line with the assumption that each cargo hold is individually flooded. In this case, the loaded cargo may be taken to be level. The equilibrium water line is the water level that is below the lower edge of any opening through which progressive flooding may take place, after taking into account sinkage, heel, and trim.	**1** The weight of the water in a flooded hold is to be calculated in accordance with **C31A.5.2-2**, **Part C**, at the water level of the equilibrium water line with the assumption that each cargo hold is individually flooded. In this case, the loaded cargo may be taken to be level. The equilibrium water line is the water level that is below the lower edge of any opening through which progressive flooding may take place, after taking into account sinkage, heel, and trim.	Wording correction

Guidance for the survey and construction of steel ships Part C C31 C31.5.2-2

Correction	Present	Note
2 The loading condition prescribed in ~~**31A5**~~**31A.5.1-2(2**~~**)**~~**)** through **(4), Part C of the Rules** refers to cases where the ship carries bulk cargoes having a density of not less than 1.0 (ton/m^3).	**2** The loading condition prescribed in **31A5.1-2(2)** through **(4)**, **Part C** of the Rules refers to cases where the ship carries bulk cargoes having a density of not less than 1.0 (ton/m^3).	Wording correction

Guidance for the survey and construction of steel ships Part C C32 C32.2.8-2

Correction	Present	Note
2 “The method which is separately specified by the Society” to calculate M_{U_DB} (kN-m) specified in **32.2.8-2, Part C of the Rules** refers to the method specified in **Annex C32.2.8-**~~**2**~~**1** “GUIDANCE FOR THE HULL GIRDER ULTIMATE STRENGTH ASSESSMENT CONSIDERING THE EFFECT OF LATERAL LOADS”.	**2** “The method which is separately specified by the Society” to calculate M_{U_DB} (kN-m) specified in **32.2.8-2, Part C of the Rules** refers to the method specified in **Annex C32.2.8-2 “GUIDANCE FOR THE HULL GIRDER ULTIMATE STRENGTH ASSESSMENT CONSIDERING THE EFFECT OF LATERAL LOADS”**.	Reference correction

Guidance for the survey and construction of steel ships Part C C32 Table C32.9.1-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table C32.9.1-1 Formulae which can be Substituted for by Direct Strength Calculations
<table>
<tr><th>Part C of the Rules</th><th>formulae</th></tr>
<tr><td>32.4.4-1</td><td>the first formula of the formulae for the thickness of inner bottom plating</td></tr>
<tr><td>32.4.5-1</td><td>the first formula of the formulae for the thickness of bottom shell plating</td></tr>
<tr><td>32.5.2-1</td><td>the formulae for the thickness of side transverse girders</td></tr>
<tr><td>32.5.2-2</td><td>the formulae for the thickness of side stringers</td></tr>
<tr><td>32.7.1(1~~)~~)</td><td>the formula for the thickness of decks inside the line of deck openings</td></tr>
<tr><td>32.7.1(2~~)~~)</td><td>the formula for the section modulus of decks inside the line of deck openings</td></tr>
<tr><td>32.7.1(3~~)~~)</td><td>the formula for the moments of inertia of decks inside the line of deck openings</td></tr>
<tr><td>6.2.3(1) and (2~~)~~)</td><td>the formulae for the thicknesses of centre girder plates and side girder plates</td></tr>
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</table>
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<tr><td>32.5.2-2</td><td>the formulae for the thickness of side stringers</td></tr>
<tr><td>32.7.1(1)</td><td>the formula for the thickness of decks inside the line of deck openings</td></tr>
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</table>
</td>
<td>Wording correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part C C35 C35.2.3-6

Correction	Present	Note
6 With respect to the provisions of **35.2.3-4(2)**~~(,),~~ **(4), (3)** and **(7), Part C of the Rules**, adjacent sections of a vertical ladder are to be in accordance with following **(1)** to **(3)**. (Refer to **Fig. C35.2.3-1**, **Fig. C35.2.3-2** and **Table C35.2.3**) (1) The minimum “lateral offset” between two adjacent sections of a vertical ladder is the distance between the sections, upper and lower, so that the adjacent stringers are spaced at least 200 *mm* apart, measured from half thickness of each stringer. (2) Adjacent sections of vertical ladder are to be installed so that the upper end of the lower section is vertically overlapped, in respect to the lower end of the upper section, to a height of 1,500 *mm* in order to permit a safe transfer between ladders. However, this requirement does not apply to cases where structural members (e.g. side stringers) are used to move between adjacent vertical ladders and are provided with safety measures such as handrails. (3) No section of the access ladder is to be terminated directly or partly above an access opening.	**6** With respect to the provisions of **35.2.3-4(2)**, **(4)**, **-5(3)** and **(7), Part C of the Rules**, adjacent sections of a vertical ladder are to be in accordance with following **(1)** to **(3)**. (Refer to **Fig. C35.2.3-1**, **Fig. C35.2.3-2** and **Table C35.2.3**) (1) The minimum “lateral offset” between two adjacent sections of a vertical ladder is the distance between the sections, upper and lower, so that the adjacent stringers are spaced at least 200 *mm* apart, measured from half thickness of each stringer. (2) Adjacent sections of vertical ladder are to be installed so that the upper end of the lower section is vertically overlapped, in respect to the lower end of the upper section, to a height of 1,500 *mm* in order to permit a safe transfer between ladders. However, this requirement does not apply to cases where structural members (e.g. side stringers) are used to move between adjacent vertical ladders and are provided with safety measures such as handrails. (3) No section of the access ladder is to be terminated directly or partly above an access opening.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C1.1.22-1 1.2.1-1

Correction	Present	Note
1 Classification of Loads (1) The loads due to the longitudinal bending moment of hull girders at the forward and aft end boundaries of the structure model may, as a rule, not be taken into consideration. When these loads are taken into consideration, however, the allowable stress to be applied to the results of calculations is to be determined as deemed appropriate by the Society. (2) The design loads to be taken into consideration are, as a rule, to be the loads due to cargo and water ballast loaded on board, hydrostatic pressure and wave loads. (3) The load due to the inertial force of cargo is to be considered in addition to those specified in **(2)** above, when the Society considers it is necessary. (4) Special consideration is to be made for cargo holds where dynamic impact loads such as sloshing loads are predicted, and proper data in this regard is to be submitted. (5) The loads for oil tankers, ore carriers and bulk carriers are to be in accordance with the requirements specified in **C29.6.2 of**, **C30.1.2** and **C31.1.5 of the Guidance** respectively, in addition to those found here in **1.2**. When deemed necessary by the Society, other loading conditions described in the Loading Manual are also to be considered.	**1** Classification of Loads (1) The loads due to the longitudinal bending moment of hull girders at the forward and aft end boundaries of the structure model may, as a rule, not be taken into consideration. When these loads are taken into consideration, however, the allowable stress to be applied to the results of calculations is to be determined as deemed appropriate by the Society. (2) The design loads to be taken into consideration are, as a rule, to be the loads due to cargo and water ballast loaded on board, hydrostatic pressure and wave loads. (3) The load due to the inertial force of cargo is to be considered in addition to those specified in **(2)** above, when the Society considers it is necessary. (4) Special consideration is to be made for cargo holds where dynamic impact loads such as sloshing loads are predicted, and proper data in this regard is to be submitted. (5) The loads for oil tankers, ore carriers and bulk carriers are to be in accordance with the requirements specified in **C29.6.2**, **C30.1.2** and **C31.1.5** of the Guidance respectively, in addition to those found here in **1.2**. When deemed necessary by the Society, other loading conditions described in the Loading Manual are also to be considered.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-1

Correction	Present	Note
1 Ships intending to operate with partially filled ballast tanks are required to be designed so as to comply with the requirements of hull girder strength specified in **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules**, when the ballast tanks are full and when they are empty. For this purpose, compliance with the hull girder strength requirements of **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules** is to be assessed for conditions just before and just after such ballasting/deballasting operation is conducted, for partially filled conditions, as well as when such ballast tanks are assumed empty or full. (Refer to **C15.2.1(4~~).)~~), Part C of the Guidance**.)	**1** Ships intending to operate with partially filled ballast tanks are required to be designed so as to comply with the requirements of hull girder strength specified in **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules**, when the ballast tanks are full and when they are empty. For this purpose, compliance with the hull girder strength requirements of **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules** is to be assessed for conditions just before and just after such ballasting/deballasting operation is conducted, for partially filled conditions, as well as when such ballast tanks are assumed empty or full. (Refer to **C15.2.1(4)**.)	Wording correction

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Correction	Present	Note
2 Notwithstanding the provisions of **-1** above, for ore carriers defined in **1.3.1(13)(b), Part B of the Rules**, tank levels of "empty and full" referred to in **-1** above may be modified according to **C15.2.1(6~~).~~), Part C of the Guidance**.	**2** Notwithstanding the provisions of **-1** above, for ore carriers defined in **1.3.1(13)(b), Part B of the Rules**, tank levels of "empty and full" referred to in **-1** above may be modified according to **C15.2.1(6)**.	Wording correction

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Correction	Present	Note
3 For ships intending to ballast/deballast during the voyage, loading conditions corresponding to all steps of the ballasting/deballasting operation are to be included in the ships' loading manuals as intermediate conditions which are part of the standard loading conditions. For this purpose, "step" is a condition just before and just after a ballasting/deballasting operation for each tank. Such intermediate conditions are to be assessed in compliance with the requirements of **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules**. (Refer to **1.3.1-2 of Annex C34.1.2** and **C15.2.1(4**~~))~~**), Part C of the Guidance**)	**3** For ships intending to ballast/deballast during the voyage, loading conditions corresponding to all steps of the ballasting/deballasting operation are to be included in the ships' loading manuals as intermediate conditions which are part of the standard loading conditions. For this purpose, "step" is a condition just before and just after a ballasting/deballasting operation for each tank. Such intermediate conditions are to be assessed in compliance with the requirements of **32.2, Part C of the Rules** for ships subject to the requirements in **Chapter 32, Part C of the Rules** and **Chapter 15, Part C of the Rules**. (Refer to **1.3.1-2 of Annex C34.1.2** and **C15.2.1(4)**)	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-6

Correction	Present	Note
6 Examples of relationships between loading conditions specified in the ships' loading manuals and those for the assessment of hull girder strength are given as the following **(1)** to **(4)**. (1) Where no ballast tank is partially filled For example, when loading conditions as shown in **(a)** are deemed as standard loading conditions, additional conditions are not required to be assessed. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 100%) iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (2) Where ballasting/deballasting operations are permitted anytime during the voyage For example, when loading conditions as shown in **(a)** are deemed standard loading conditions, additional conditions such as in **(b)** are required to be assessed. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%) iv) Intermediate condition 3 (Consumables:	**6** Examples of relationships between loading conditions specified in the ships' loading manuals and those for the assessment of hull girder strength are given as the following **(1)** to **(4)**. (1) Where no ballast tank is partially filled For example, when loading conditions as shown in **(a)** are deemed as standard loading conditions, additional conditions are not required to be assessed. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 100%) iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (2) Where ballasting/deballasting operations are permitted anytime during the voyage For example, when loading conditions as shown in **(a)** are deemed standard loading conditions, additional conditions such as in **(b)** are required to be assessed. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%) iv) Intermediate condition 3 (Consumables:	Wording correction

20%, No.6 WBT(P/S): 60%) v) Intermediate condition 4 (Consumables: 20%, No.6 WBT(P/S): 100%) vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. Conditions **ii)** and **iii)** may be guaranteed by the assessment of conditions **i)** and **iv)** respectively, however it should be determined on a case by case basis. i) Departure (Consumables: 100%, No.6 WBT(P/S): 100%) ii) Intermediate condition 1/2 (Consumables: 50%, No.6 WBT(P/S): 100%) iii) Intermediate condition 3/4 (Consumables: 20%, No.6 WBT(P/S): 0%) iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 0%) (3) Where ballasting/deballasting operations are permitted only at certain times during the voyage For example, when loading conditions as shown in **(a)** are deemed as standard loading conditions and ballasting/deballasting operations are assumed to be made when remaining consumables reach levels of 50% and 20%, additional conditions such as in **(b)** are required to be assessed. It is to be noted in the ship's loading manual that the timing for ballasting/deballasting is assumed to take place when the remaining consumables are at 50% and 20% for the purpose of complying with the hull girder strength requirements and for ballasting/deballasting at other times, the hull girder strength of the ship is to be assessed while carefully noting the filling level of the	20%, No.6 WBT(P/S): 60%) v) Intermediate condition 4 (Consumables: 20%, No.6 WBT(P/S): 100%) vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. Conditions **ii)** and **iii)** may be guaranteed by the assessment of conditions **i)** and **iv)** respectively, however it should be determined on a case by case basis. i) Departure (Consumables: 100%, No.6 WBT(P/S): 100%) ii) Intermediate condition 1/2 (Consumables: 50%, No.6 WBT(P/S): 100%) iii) Intermediate condition 3/4 (Consumables: 20%, No.6 WBT(P/S): 0%) iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 0%) (3) Where ballasting/deballasting operations are permitted only at certain times during the voyage For example, when loading conditions as shown in **(a)** are deemed as standard loading conditions and ballasting/deballasting operations are assumed to be made when remaining consumables reach levels of 50% and 20%, additional conditions such as in **(b)** are required to be assessed. It is to be noted in the ship's loading manual that the timing for ballasting/deballasting is assumed to take place when the remaining consumables are at 50% and 20% for the purpose of complying with the hull girder strength requirements and for ballasting/deballasting at other times, the hull girder strength of the ship is to be assessed while carefully noting the filling level of the	

ballast tanks . (a) Loading conditions specified in the ship’s loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%) iv) Intermediate condition 3 (Consumables: 20%, No.6 WBT(P/S): 60%) v) Intermediate condition 4 (Consumables: 20%, No.6 WBT(P/S): 100%) vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. i) Intermediate condition 1/2 (Consumables: 50%, No.6 WBT(P/S): 100%) ii) Intermediate condition 3/4 (Consumables: 20%, No.6 WBT(P/S): 0%) (4) Where an ore carrier conducts ballasting/deballasting operations on 2 pairs of ballast tanks only at certain times during the voyage For example, when loading conditions as shown in **(a)** are deemed standard loading conditions and ballasting/deballasting operations are assumed to be made when remaining consumables reach levels of 50% and 20%, additional conditions such as in **(b)** are required to be assessed. It is to be noted in the ship’s loading manual that the timing for ballasting/deballasting is assumed to take place when the remaining consumables are at 50% and 20% for the purpose of complying with the hull girder strength	ballast tanks . (a) Loading conditions specified in the ship’s loading manual i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%) ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%) iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%) iv) Intermediate condition 3 (Consumables: 20%, No.6 WBT(P/S): 60%) v) Intermediate condition 4 (Consumables: 20%, No.6 WBT(P/S): 100%) vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. i) Intermediate condition 1/2 (Consumables: 50%, No.6 WBT(P/S): 100%) ii) Intermediate condition 3/4 (Consumables: 20%, No.6 WBT(P/S): 0%) (4) Where an ore carrier conducts ballasting/deballasting operations on 2 pairs of ballast tanks only at certain times during the voyage For example, when loading conditions as shown in **(a)** are deemed standard loading conditions and ballasting/deballasting operations are assumed to be made when remaining consumables reach levels of 50% and 20%, additional conditions such as in **(b)** are required to be assessed. It is to be noted in the ship’s loading manual that the timing for ballasting/deballasting is assumed to take place when the remaining consumables are at 50% and 20% for the purpose of complying with the hull girder strength	

requirements and for ballasting/deballasting at other times the hull girder strength of the ship is to be assessed while carefully noting the filling level of the ballast tanks. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) ii) Intermediate condition 1 (Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) iii) Intermediate condition 2 (Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) iv) Intermediate condition 3 (Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) v) Intermediate condition 4 (Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) vi) Arrival (Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. "Max." and "Min." in the following conditions refer to the maximum and minimum filling levels specified in **C15.2.1(6~~).~~), Part C of the Guidance**. i) Departure (Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) 1) Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Max. 2) Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Min.	requirements and for ballasting/deballasting at other times the hull girder strength of the ship is to be assessed while carefully noting the filling level of the ballast tanks. (a) Loading conditions specified in the ship's loading manual i) Departure (Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) ii) Intermediate condition 1 (Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) iii) Intermediate condition 2 (Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) iv) Intermediate condition 3 (Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) v) Intermediate condition 4 (Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) vi) Arrival (Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) (b) Additional loading conditions for the assessment of hull girder strength are to be as follows. "Max." and "Min." in the following conditions refer to the maximum and minimum filling levels specified in **C15.2.1(6)**. i) Departure (Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) 1) Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Max. 2) Consumables: 100%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Min.	

3) Consumables: 100%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 100%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 100%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 100%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 30% 8) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 30% 9) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% ii) Intermediate condition 1 (Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) 1) Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Max. 2) Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Min. 3) Consumables: 50%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 50%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 50%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 50%, No.1 WBT(P/S):	3) Consumables: 100%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 100%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 100%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 100%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 30% 8) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 30% 9) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 100%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 100%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% ii) Intermediate condition 1 (Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): 30%) 1) Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Max. 2) Consumables: 50%, No.1 WBT(P/S): 60%, No.5 WBT(P/S): Min. 3) Consumables: 50%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 50%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 50%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 50%, No.1 WBT(P/S):	

0%, No.5 WBT(P/S): Min. 7) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 30% 8) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 30% 9) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% iii) Intermediate condition 2 (Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) 1) Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Max. 2) Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Min. 3) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 50% 4) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 50% iv) Intermediate condition 3 (Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) 1) Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Max. 2) Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Min. 3) Consumables: 20%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 20%, No.1 WBT(P/S):	0%, No.5 WBT(P/S): Min. 7) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 30% 8) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 30% 9) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% iii) Intermediate condition 2 (Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) 1) Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Max. 2) Consumables: 50%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Min. 3) Consumables: 50%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 50% 4) Consumables: 50%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 50% iv) Intermediate condition 3 (Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): 50%) 1) Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Max. 2) Consumables: 20%, No.1 WBT(P/S): 30%, No.5 WBT(P/S): Min. 3) Consumables: 20%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 20%, No.1 WBT(P/S):	

100%, No.5 WBT(P/S): Min. 5) Consumables: 20%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 20%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 50% 8) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 50% 9) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% v) Intermediate condition 4 (Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) 1) Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Max. 2) Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Min. 3) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 70% 4) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 70% vi) Arrival (Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) 1) Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Max. 2) Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Min.	100%, No.5 WBT(P/S): Min. 5) Consumables: 20%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 20%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 50% 8) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 50% 9) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0% v) Intermediate condition 4 (Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) 1) Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Max. 2) Consumables: 20%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Min. 3) Consumables: 20%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 70% 4) Consumables: 20%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 70% vi) Arrival (Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): 70%) 1) Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Max. 2) Consumables: 10%, No.1 WBT(P/S): 10%, No.5 WBT(P/S): Min.	

3) Consumables: 10%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 10%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 10%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 10%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 70% 8) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 70% 9) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0%	3) Consumables: 10%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Max. 4) Consumables: 10%, No.1 WBT(P/S): 100%, No.5 WBT(P/S): Min. 5) Consumables: 10%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Max. 6) Consumables: 10%, No.1 WBT(P/S): 0%, No.5 WBT(P/S): Min. 7) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 70% 8) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 70% 9) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 100% 10) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 100% 11) Consumables: 10%, No.1 WBT(P/S): Max., No.5 WBT(P/S): 0% 12) Consumables: 10%, No.1 WBT(P/S): Min., No.5 WBT(P/S): 0%	

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Correction	Present	Note
4 Torsional buckling The load-end shortening curve $\sigma_{CR2}-\varepsilon$ for the flexural-torsional buckling of stiffeners composing the hull girder transverse section is to be obtained according to the following formula: $\sigma_{CR2}=\Phi\frac{A_P\sigma_{CP}+A_S\sigma_{C2}}{A_P+A_S}$ Φ: Edge function, as defined in **-2**. σ_{C2}: Critical stress (N/mm^2), equal to the following: $\sigma_{C2}=\frac{\sigma_{E2}}{\varepsilon}$ for $\sigma_{E2}\leq\frac{\sigma_{YS}}{2}\varepsilon$ $\sigma_{C2}=\sigma_{YS}\left(1-\frac{\sigma_{YS}\varepsilon}{4\sigma_{E2}}\right)$ for $\sigma_{E2}>\frac{\sigma_{YS}}{2}\varepsilon$ ε: Relative strain, as defined in **-2**. σ_{E2}: Euler torsional buckling stress (N/mm^2), taken as σ_{ET} specified in **2.4.4-4**, **Annex C32.2.7 “GUIDANCE FOR BUCKLING STRENGTH ASSESSMENT”**. σ_{CP}: Buckling stress of the attached plating (N/mm^2), equal to the following: $\sigma_{CP}=\left(\frac{2.25}{\beta_E}-\frac{1.25}{\beta_E^2}\right)\sigma_{YP}$ for $\beta_E>1.25$ $\sigma_{CP}=\sigma_{YP}$ for $\beta_E\leq 1.25$ β_E: Coefficient, as defined in **-3**.	**4** Torsional buckling The load-end shortening curve $\sigma_{CR2}-\varepsilon$ for the flexural-torsional buckling of stiffeners composing the hull girder transverse section is to be obtained according to the following formula: $\sigma_{CR2}=\Phi\frac{A_P\sigma_{CP}+A_S\sigma_{C2}}{A_P+A_S}$ Φ: Edge function, as defined in **-2**. σ_{C2}: Critical stress (N/mm^2), equal to the following: $\sigma_{C2}=\frac{\sigma_{E2}}{\varepsilon}$ for $\sigma_{E2}\leq\frac{\sigma_{YS}}{2}\varepsilon$ $\sigma_{C2}=\sigma_{YS}\left(1-\frac{\sigma_{YS}\varepsilon}{4\sigma_{E2}}\right)$ for $\sigma_{E2}>\frac{\sigma_{YS}}{2}\varepsilon$ ε: Relative strain, as defined in **-2**. σ_{E2}: Euler torsional buckling stress (N/mm^2), taken as σ_{ET} specified in **2.4.4-4 Annex C32.2.7 “GUIDANCE FOR BUCKLING STRENGTH ASSESSMENT”**. σ_{CP}: Buckling stress of the attached plating (N/mm^2), equal to the following: $\sigma_{CP}=\left(\frac{2.25}{\beta_E}-\frac{1.25}{\beta_E^2}\right)\sigma_{YP}$ for $\beta_E>1.25$ $\sigma_{CP}=\sigma_{YP}$ for $\beta_E\leq 1.25$ β_E: Coefficient, as defined in **-3**.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.2.1-6

Correction	Present	Note
1 The following precautions regarding loading are to be specified in the Loading Manual. (1) For standard loading conditions, the analysis results of structural strength including transverse strength and local strength and the operational precautions based on the analysis results of the strength (2) For loading conditions different from standard loading conditions, precautions regarding the prevention of excessive stress on the hull strength (3) Precautions regarding weight shifting involving the transfer of ballast water and cargo when loading under standard loading conditions or any other arbitrary loading conditions (4) Precautions related to the filling level of ballast tanks according to the provisions of **C15.2.1(6~~)~~), Part C of the Guidance**	**1** The following precautions regarding loading are to be specified in the Loading Manual. (1) For standard loading conditions, the analysis results of structural strength including transverse strength and local strength and the operational precautions based on the analysis results of the strength (2) For loading conditions different from standard loading conditions, precautions regarding the prevention of excessive stress on the hull strength (3) Precautions regarding weight shifting involving the transfer of ballast water and cargo when loading under standard loading conditions or any other arbitrary loading conditions (4) Precautions related to the filling level of ballast tanks according to the provisions of **C15.2.1(6)**	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.2.4-1

Correction	Present	Note
1 For ships to which the requirements in **32.3.1-1, Part C of the Rules** apply, the values of torsional moment of hull due to uneven cargo stowage are to be specified as the allowable value in the manual. In cases where the values of torsional moments of hull due to uneven cargo stowage are to be considered for ships subject to the requirements in **C32.3.1, Part C of the Guidance**, the torsional moments are to be taken as the allowable values in the manual.	**1** For ships to which the requirements in **32.3.1-1, Part C of the Rules** apply, the values of torsional moment of hull due to uneven cargo stowage are to be specified as the allowable value in the manual. In cases where the values of torsional moments of hull due to uneven cargo stowage are to be considered for ships subject to the requirements in **C32.3.1**, the torsional moments are to be taken as the allowable values in the manual.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-2

Correction	Present	Note
2 The results of calculations specified in **-1** above on each condition are to be shown on a single or double page as far as practicable together with the arrangement plan of compartments (tanks and cargo holds), cargo stowage table, and the results of trim and stability calculations.	**2** The results of calculations specified in **1** above on each condition are to be shown on a single or double page as far as practicable together with the arrangement plan of compartments (tanks and cargo holds), cargo stowage table, and the results of trim and stability calculations.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-3

Correction	Present	Note
3 Descriptive examples specified in **-1** and **-2** above are shown in **1.5 of Appendix C2**. Restrictions imposed for operation of the ship in standard loading conditions if any, are to be specified.	**3** Descriptive examples specified in **1** and **2** above are shown in **1.5 of Appendix C2**. Restrictions imposed for operation of the ship in standard loading conditions if any, are to be specified.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-3

Correction	Present	Note
1 For ships to which the requirements in **Chapter 32, Part C of the Rules** do not apply, the allowable values for longitudinal still water bending moment and still water shearing force which are to be specified in the Loading Manual are to be determined with due consideration of the design condition of the ship. These values, however, are not to exceed the values obtained from the requirements in the following **(1)** to **(3)**, at positions of the transverse section of the hull where deemed necessary by the Society. (1) Allowable Values for Vertical Still Water Bending Moment The values obtained from the following formulae are to be taken as the allowable value for each positive and negative moment at the transverse section of the ship under consideration. However, these values are to satisfy the requirements in **15.4, Part C of the**	**1** For ships to which the requirements in **Chapter 32, Part C of the Rules** do not apply, the allowable values for longitudinal still water bending moment and still water shearing force which are to be specified in the Loading Manual are to be determined with due consideration of the design condition of the ship. These values, however, are not to exceed the values obtained from the requirements in the following **(1)** to **(3)**, at positions of the transverse section of the hull where deemed necessary by the Society. (1) Allowable Values for Vertical Still Water Bending Moment The values obtained from the following formulae are to be taken as the allowable value for each positive and negative moment at the transverse section of the ship under consideration. However, these values are to satisfy the requirements in **15.4, Part C of the**	Wording correction

Rules. Value determined by longitudinal bending strength For positive values: $\frac{fZ}{5.72C}-M_w(+)$ (*kN-m*) For negative values: $-\frac{fZ}{5.72C}-M_w(-)$(*kN-m*) f: As specified in the following **(a)** or **(b):** (a) 1.0 for ships to which the requirements in **1.1.7-2(1), Part C** and **1.3.1-2(1), Part CS of the Rules** do not apply However, for ships to which the requirements with f_B or f_D in **Part C of the Rules** or **Part C of the Guidance** apply, the value of f is to be taken as f_B or f_D. (b) The value of f_{BH} or f_{DH} determined by the requirements in **1.2.1-2(1)** of **Annex C1.1.7-1 “GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS”** for ships to which the requirements in **1.1.7-2(1), Part C** or **1.3.1-2(1), Part CS of the Rules** is applied Z: Section modulus (cm^3) of transverse section of the ship with respect to the ship’s bottom or strength deck at the position under consideration C: Coefficient specified in **C15.1.1(3), ~~PartC~~Part C of the Guidance** However, where $C'_b \geq 0.65$, C = 1.0. C'_b: As specified in **15.2.1-1, Part C of the Rules** $M_w(+)$ and $M_w(-)$: As specified in **15.2.1-1, Part C of the Rules** (2) Allowable Values for Still Water Shearing Force (a) The allowable values for still water shearing	**Rules**. Value determined by longitudinal bending strength For positive values: $\frac{fZ}{5.72C}-M_w(+)$ (*kN-m*) For negative values: $-\frac{fZ}{5.72C}-M_w(-)$(*kN-m*) f: As specified in the following **(a)** or **(b):** (a) 1.0 for ships to which the requirements in **1.1.7-2(1), Part C** and **1.3.1-2(1), Part CS of the Rules** do not apply However, for ships to which the requirements with f_B or f_D in **Part C of the Rules** or **Part C of the Guidance** apply, the value of f is to be taken as f_B or f_D. (b) The value of f_{BH} or f_{DH} determined by the requirements in **1.2.1-2(1)** of **Annex C1.1.7-1 “GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS”** for ships to which the requirements in **1.1.7-2(1), Part C** or **1.3.1-2(1), Part CS of the Rules** is applied Z: Section modulus (cm^3) of transverse section of the ship with respect to the ship’s bottom or strength deck at the position under consideration C: Coefficient specified in **C15.1.1(3), PartC of the Guidance** However, where $C'_b \geq 0.65$, C = 1.0. C'_b: As specified in **15.2.1-1, Part C of the Rules** $M_w(+)$ and $M_w(-)$: As specified in **15.2.1-1, Part C of the Rules** (2) Allowable Values for Still Water Shearing Force (a) The allowable values for still water shearing	

forces for ships without longitudinal bulkheads are to be obtained from the following formula: For positive values: $\frac{t_s I}{0.455mK} - F_w(+)$ (*kN*) For negative values: $-\frac{t_s I}{0.455mK} - F_w(-)$ (*kN*) t_s: Plate thickness (*mm*) of side shell plating at positions under consideration I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** K: Coefficient corresponding to the kind of steel *e.g.,* 1.0 for mild steel, the values specified in **1.1.7-2(1) of the Rules** for high tensile steel (b) For ships which have the plate thickness of side shell plating determined according to the requirements in **C15.3.1-1 of the Guidance**, the value of **(a)** above or the value obtained from the following formula is to be taken, whichever is smaller. For positive values: $F\frac{\tau_p}{\tau} - F_w(+)$ (*kN*) For negative values: $-F\frac{\tau_p}{\tau} - F_w(-)$ (*kN*) F: Shearing force (*kN*) acting on the transverse section of the ship used in the direct calculation which is given by the formulae specified in **C15.3.1-1(1~~)~~)** $F_w(+)$ and $F_w(-)$: Wave induced longitudinal shearing force (*kN*) as specified in **15.3.1-1, Part C of the Rules** τ_p: Allowable stress (N/mm^2) as specified in **C15.3.1-1(2~~)~~)** τ: The largest of the shearing stresses (N/mm^2)	forces for ships without longitudinal bulkheads are to be obtained from the following formula: For positive values: $\frac{t_s I}{0.455mK} - F_w(+)$ (*kN*) For negative values: $-\frac{t_s I}{0.455mK} - F_w(-)$ (*kN*) t_s: Plate thickness (*mm*) of side shell plating at positions under consideration I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** K: Coefficient corresponding to the kind of steel *e.g.,* 1.0 for mild steel, the values specified in **1.1.7-2(1) of the Rules** for high tensile steel (b) For ships which have the plate thickness of side shell plating determined according to the requirements in **C15.3.1-1 of the Guidance**, the value of **(a)** above or the value obtained from the following formula is to be taken, whichever is smaller. For positive values: $F\frac{\tau_p}{\tau} - F_w(+)$ (*kN*) For negative values: $-F\frac{\tau_p}{\tau} - F_w(-)$ (*kN*) F: Shearing force (*kN*) acting on the transverse section of the ship used in the direct calculation which is given by the formulae specified in **C15.3.1-1(1)** $F_w(+)$ and $F_w(-)$: Wave induced longitudinal shearing force (*kN*) as specified in **15.3.1-1, Part C of the Rules** τ_p: Allowable stress (N/mm^2) as specified in **C15.3.1-1(2)**	

determined by direct calculation occurring in side shell plating, bilge hopper tanks and top side tanks (c) For ships with one to four rows of longitudinal bulkheads, the allowable value for still water shearing force is to be as specified in the following requirements in **i)** and **ii)**: i) The allowable value for still water shearing force is to be obtained from the following formula: For positive values: $\frac{\sum tI}{0.455mK} - F_w(+)$ (*kN*) For negative values: $-\frac{\sum tI}{0.455mK} - F_w(-)$ (*kN*) I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** $\sum t$:Sum of the plate thickness (*mm*) of each longitudinal bulkhead at positions under consideration K: As specified in **(a)** above ii) The allowable value for shearing force (F_L) acting on the longitudinal bulkheads on one side is to be obtained from the following formula: For positive values: $\frac{tI}{0.910mK} - \alpha F_w(+)$ (*kN*) For negative values: $-\frac{tI}{0.910mK} - \alpha F_w(-)$ (*kN*) I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** t: Plate thickness (*mm*) of the each longitudinal bulkhead at positions under	τ: The largest of the shearing stresses (*N/mm*^{2}) determined by direct calculation occurring in side shell plating, bilge hopper tanks and top side tanks (c) For ships with one to four rows of longitudinal bulkheads, the allowable value for still water shearing force is to be as specified in the following requirements in **i)** and **ii)**: i) The allowable value for still water shearing force is to be obtained from the following formula: For positive values: $\frac{\sum tI}{0.455mK} - F_w(+)$ (*kN*) For negative values: $-\frac{\sum tI}{0.455mK} - F_w(-)$ (*kN*) I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** $\sum t$:Sum of the plate thickness (*mm*) of each longitudinal bulkhead at positions under consideration K: As specified in **(a)** above ii) The allowable value for shearing force (F_L) acting on the longitudinal bulkheads on one side is to be obtained from the following formula: For positive values: $\frac{tI}{0.910mK} - \alpha F_w(+)$ (*kN*) For negative values: $-\frac{tI}{0.910mK} - \alpha F_w(-)$ (*kN*) I, m, $F_w(+)$ and $F_w(-)$: As specified in **15.3.1-1, Part C of the Rules** t: Plate thickness (*mm*) of the each	

consideration α: Rate of distribution of shearing force in each longitudinal bulkhead as specified in **15.3.2, Part C of the Rules** K: As specified in **(a)** above (d) The allowable values for F_S determined from **(a)** to **(c)** above are to comply with the requirements in **15.4.1, Part C of the Rules**. (3) Allowable Values for Longitudinal Still Water Bending Moment and Shearing Force in Harbour Condition The allowable values for the longitudinal still water bending moment and shearing force in harbour water free from the effects of waves may be obtained by taking half the values of the wave induced longitudinal bending moment and shearing force as specified in **(1)** and **(2)** respectively.	longitudinal bulkhead at positions under consideration α: Rate of distribution of shearing force in each longitudinal bulkhead as specified in **15.3.2, Part C of the Rules** K: As specified in **(a)** above (d) The allowable values for F_S determined from **(a)** to **(c)** above are to comply with the requirements in **15.4.1, Part C of the Rules**. (3) Allowable Values for Longitudinal Still Water Bending Moment and Shearing Force in Harbour Condition The allowable values for the longitudinal still water bending moment and shearing force in harbour water free from the effects of waves may be obtained by taking half the values of the wave induced longitudinal bending moment and shearing force as specified in **(1)** and **(2)** respectively.	

Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.4.1-2

Correction	Present	Note
2 For ships to which the requirements in **Chapter 32, Part C of the Rules** apply, the allowable values for the vertical still water bending moment and vertical still water shear force which are to be specified in the loading manual are to be the permissible vertical still water bending moment and vertical still water shear force specified in **32.2.3-4, Part C of the Rules**. The allowable values for the vertical still water bending moment and vertical still water shear force in the harbour condition may be the values of the above allowable values for the vertical still water bending moment and vertical still water shear force plus half the value of the vertical wave induced bending moment and vertical wave induced shear force as specified in **32.2.~~9~~3-6** and **-7, Part C of the Rules**.	**2** For ships to which the requirements in **Chapter 32, Part C of the Rules** apply, the allowable values for the vertical still water bending moment and vertical still water shear force which are to be specified in the loading manual are to be the permissible vertical still water bending moment and vertical still water shear force specified in **32.2.3-4, Part C of the Rules**. The allowable values for the vertical still water bending moment and vertical still water shear force in the harbour condition may be the values of the above allowable values for the vertical still water bending moment and vertical still water shear force plus half the value of the vertical wave induced bending moment and vertical wave induced shear force as specified in **32.2.9-6** and **-7, Part C of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part C Annex C35.2.4 2.6.2-1

Correction	Present	Note
1 Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s): (1) The surface of the water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed 0.25 *m*) and the water level stationary. On no account should the level of the water be rising while the boat or raft is in use. (2) Except where permanent means of access is provided in each bay to allow safe entry and exit in accordance with **C35.2.4-3(2)**, **Part C of the Guidance,** at no time should the upside of the boat or raft be allowed to be within 1 *m* of the deepest under deck web face flat. (3) The tank or space in which the boat or raft will be used should contain clean ballast water only. When a thin sheen of oil on the water is observed, further testing of the atmosphere should be done to ensure that the tank or space is safe for entering. (4) If the tanks (or spaces) are connected by a common venting system, or inert gas system, the tank in which the boat or raft will be used should be isolated to prevent a transfer of gas from other tanks (or spaces). (5) Appropriate lifejackets should be available for all participants. (6) The boat or raft should be tethered to the access ladder and an additional person should be stationed down the access ladder with a clear view of the boat or raft. (7) A communication system should be arranged between the survey party in the tank or space being examined, the responsible officer on deck, the navigation bridge	**1** Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s): (1) The surface of the water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed 0.25 *m*) and the water level stationary. On no account should the level of the water be rising while the boat or raft is in use. (2) Except where permanent means of access is provided in each bay to allow safe entry and exit in accordance with **C35.2.4-3(2)**, at no time should the upside of the boat or raft be allowed to be within 1 *m* of the deepest under deck web face flat. (3) The tank or space in which the boat or raft will be used should contain clean ballast water only. When a thin sheen of oil on the water is observed, further testing of the atmosphere should be done to ensure that the tank or space is safe for entering. (4) If the tanks (or spaces) are connected by a common venting system, or inert gas system, the tank in which the boat or raft will be used should be isolated to prevent a transfer of gas from other tanks (or spaces). (5) Appropriate lifejackets should be available for all participants. (6) The boat or raft should be tethered to the access ladder and an additional person should be stationed down the access ladder with a clear view of the boat or raft. (7) A communication system should be arranged between the survey party in the tank or space being examined, the responsible officer on deck, the navigation bridge	Wording correction

and the personnel in charge of handling the ballast pump(s) in the pump control room. (8) Adequate and safe lighting should be provided for the safe and efficient conduct of the survey.	and the personnel in charge of handling the ballast pump(s) in the pump control room. (8) Adequate and safe lighting should be provided for the safe and efficient conduct of the survey.	

Guidance for the survey and construction of steel ships Part C Part 1 C13 C13 2.9.2-4

Correction	Present	Note
1 Split pins are not recommendable as the locking device for pintle nuts. Locking rings or other equivalent devices are to be used, as shown in **Fig. C13.2.9-1**. **2** To prevent corrosion of pintles, the end of the sleeve is to be filled with red lead, grease packing, bituminous enamel, rubber, etc. as shown in **Fig. C13.2.9-1**. **3** Combining pintle and rudder frame into a monoblock is not recommended. **4** For the reaction force in bearing *B* specified in **13.2.9.2-2, Part ~~1~~C of the Rules**, for example, B_1 defined in **Fig. C13.2.4-4** is used for Type *D* rudders.	**1** Split pins are not recommendable as the locking device for pintle nuts. Locking rings or other equivalent devices are to be used, as shown in **Fig. C13.2.9-1**. **2** To prevent corrosion of pintles, the end of the sleeve is to be filled with red lead, grease packing, bituminous enamel, rubber, etc. as shown in **Fig. C13.2.9-1**. **3** Combining pintle and rudder frame into a monoblock is not recommended. **4** For the reaction force in bearing *B* specified in **13.2.9.2-2, Part 1**, for example, B_1 defined in **Fig. C13.2.4-4** is used for Type *D* rudders.	Reference correction

Guidance for the survey and construction of steel ships Part C Part 1 Appendix C3

Correction	Present	Note
This Appendix gives a reference sample for the preparation of a Ship Structure Access Manual as required in **14.16.~~2.6~~3.5, Part ~~1 of Part~~ C of the Rules**. This includes items specified in the Rules and also general notices for ensuring the maintenance of a minimum level of safety in the use of means of access, with examples. It should be noted that when preparing the manual for each ship, factors such as the specifications of means of access and the type of ship safety management system onboard that ship are taken into consideration.	This Appendix gives a reference sample for the preparation of a Ship Structure Access Manual as required in **14.16.2.6, Part 1 of Part C of the Rules.** This includes items specified in the Rules and also general notices for ensuring the maintenance of a minimum level of safety in the use of means of access, with examples. It should be noted that when preparing the manual for each ship, factors such as the specifications of means of access and the type of ship safety management system onboard that ship are taken into consideration.	Reference correction

Guidance for the survey and construction of steel ships Part U U1 U1.1.2-1

Correction	Present	Note
1 For certain ships which have comparatively wider beams and smaller depths than typical ships (about $B/D \geq 2.5$), notwithstanding the provisions of **2.2.1-1, Chapter 2, Part U of the Rules**, stability curves may comply with the following requirements in cases where deemed acceptable by the Society. (1) Stability curves are to be comply with the requirements given in **2.2.1-1(1)** to **(4)** and **(6), Chapter 2, Part U of the Rules**. (2) θ_{max} is to be comply with the following requirements: (a) θ_{max} is not to be less than 15°. (b) With respect to the requirements given in **Fig. U2.1, Part U** of the Rules, the area under a stability curve between 0° and θ_{max} ($m \cdot rad$) is to be not less than: $0.055 + 0.001(30^\circ - \theta_{max})$ where $\theta_{max}$is as given in **2.2.1-1, Chapter 2, Part U of the Rules**.	**1** For certain ships which have comparatively wider beams and smaller depths than typical ships (about $B/D \geq 2.5$), notwithstanding the provisions of **2.2.1-1, Chapter 2, Part U of the Rules**, stability curves may comply with the following requirements in cases where deemed acceptable by the Society. (1) Stability curves are to be comply with the requirements given in **2.2.1-1(1)** to **(4)** and **(6), Chapter 2, Part U**. (2) θ_{max} is to be comply with the following requirements: (a) θ_{max} is not to be less than 15°. (b) With respect to the requirements given in **Fig. U2.1, Part U** of the Rules, the area under a stability curve between 0° and θ_{max} ($m \cdot rad$) is to be not less than: $0.055 + 0.001(30^\circ - \theta_{max})$ where $\theta_{max}$is as given in **2.2.1-1, Chapter 2, Part U of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part U Annex U1.2.1 1.3.2-6

Correction	Present	Note
6 Where the ships are loaded with timber deck cargoes and are applied to the requirements of **2.2.1-2, Part U of the Rules** and **U2.3.1-3 of the Guidance**, the condition that such cargo is stowed in accordance with the provisions of Chapter 3 of the *CODE OF SAFE PRACTICE FOR SHIPS CARRYING TIMBER DECK CARGOES, 1991* (resolution *A*.715(17)) are to be described.	**6** Where the ships are loaded with timber deck cargoes and are applied to the requirements of **2.2.1-2, Part U of the Rules** and **U2.3.1-3**, the condition that such cargo is stowed in accordance with the provisions of Chapter 3 of the *CODE OF SAFE PRACTICE FOR SHIPS CARRYING TIMBER DECK CARGOES, 1991* (resolution *A*.715(17)) are to be described.	Wording correction

Guidance for the survey and construction of steel ships Part U Annex U1.2.2 1.3.1-1

Correction	Present	Note
1 Hardware for stability computers is recommended to be of approved type in accordance with the requirements of **Chapter 2, Part 7 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use “APPROVAL OF USE OF LOADING COMPUTER ~~AND STABILITY COMPUTER”.~~”.**	**1** Hardware for stability computers is recommended to be of approved type in accordance with the requirements of **Chapter 2, Part 7 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use “APPROVAL OF USE OF LOADING COMPUTER AND STABILITY COMPUTER”.**	Wording correction

Guidance for the survey and construction of steel ships Part D D1 D1.1.1-1

Correction	Present	Note
1 In **Part D of the Rules**, “main propulsion machinery” means the following machinery which generates or converts motive power capable of propelling a ship at the speed specified in **2.1.8, Part A of the Rules**: (1) Reciprocating internal combustion engines (including superchargers) (2) Steam turbines (including main condensers) (3) Gas turbines (including combustors) (4) Generating plants for propulsion and motors for propulsion (excluding **Chapter 18**~~)~~**, Part D of the Rules**)	**1** In **Part D of the Rules**, “main propulsion machinery” means the following machinery which generates or converts motive power capable of propelling a ship at the speed specified in **2.1.8, Part A of the Rules**: (1) Reciprocating internal combustion engines (including superchargers) (2) Steam turbines (including main condensers) (3) Gas turbines (including combustors) (4) Generating plants for propulsion and motors for propulsion (excluding **Chapter 18**)	Wording correction

Guidance for the survey and construction of steel ships Part D D2 D2.3.1-2

Correction	Present	Note
2 The diameters of crankpins and journals are to be not less than the value given by the following formula: $d_c = \left\{\left(M+\sqrt{M^2+T^2}\right)D^2\right\}^{\frac{1}{3}} K_m K_s K_h$ where d_c : Required diameter of crankshaft (*mm*) M : $10^{-2} ALP_{max}$ T : $10^{-2} BSP_{mi}$ S : Length of stroke (*mm*) L : Span of bearings adjacent to crank measured from centre to centre (*mm*) P_{max} : Maximum combustion pressure in cylinder (*MPa*) P_{mi} : Indicated mean effective pressure (*MPa*) A and B : Coefficients given in **Table D2.3.1-2(1)** to **D2.3.1-2(4)** for engines having equal firing	**2** The diameters of crankpins and journals are to be not less than the value given by the following formula: $d_c = \left\{\left(M+\sqrt{M^2+T^2}\right)D^2\right\}^{\frac{1}{3}} K_m K_s K_h$ where d_c : Required diameter of crankshaft (*mm*) M : $10^{-2} ALP_{max}$ T : $10^{-2} BSP_{mi}$ S : Length of stroke (*mm*) L : Span of bearings adjacent to crank measured from centre to centre (*mm*) P_{max} : Maximum combustion pressure in cylinder (*MPa*) P_{mi} : Indicated mean effective pressure (*MPa*) A and B : Coefficients given in **Table D2.3.1-2** for engines having equal firing intervals (in the case of Vee	Reference correction

intervals (in the case of Vee type engines, those with equal firing intervals on each bank.). Special consideration will be given to values *A* and *B* for reciprocating internal combustion engines having unequal firing intervals or for those not covered by the Tables. D : Cylinder bore (*mm*) K_m: Value given by the following **(1)** or **(2)** in accordance with the specified tensile strength of the crankshaft material. However, the value of K_m for materials other than steel forgings and steel castings is to be determined by the Society in each case. (1) In cases where the specified tensile strength of material exceeds 440 N/mm^2 $K_m = \sqrt[3]{\frac{440}{440+\frac{2}{3}(T_s-440)}}$ where T_s : Specified tensile strength of material (N/mm^2) The value of T_s is not to exceed 760 N/mm^2 for carbon steel forgings and 1080 N/mm^2 for low alloy steel forgings. (2) In cases where the specified tensile strength of material is not more than 440 N/mm^2 but not less than 400 N/mm^2 $K_m = 1.0$ K_s : Value given by the following **(1)**, **(2)**, or **(3)** in accordance with the manufacturing method of crankshafts. (1) In cases where the crankshafts are manufactured by a special forging process approved by the Society as well as where the product quality is	type engines, those with equal firing intervals on each bank.). Special consideration will be given to values *A* and *B* for reciprocating internal combustion engines having unequal firing intervals or for those not covered by the Tables. D : Cylinder bore (*mm*) K_m: Value given by the following **(1)** or **(2)** in accordance with the specified tensile strength of the crankshaft material. However, the value of K_m for materials other than steel forgings and steel castings is to be determined by the Society in each case. (1) In cases where the specified tensile strength of material exceeds 440 N/mm^2 $K_m = \sqrt[3]{\frac{440}{440+\frac{2}{3}(T_s-440)}}$ where T_s : Specified tensile strength of material (N/mm^2) The value of T_s is not to exceed 760 N/mm^2 for carbon steel forgings and 1080 N/mm^2 for low alloy steel forgings. (2) In cases where the specified tensile strength of material is not more than 440 N/mm^2 but not less than 400 N/mm^2 $K_m = 1.0$ K_s : Value given by the following **(1)**, **(2)**, or **(3)** in accordance with the manufacturing method of crankshafts. (1) In cases where the crankshafts are manufactured by a special forging process approved by the Society as well as where the product quality is	

stable and the fatigue strength is considered to be improved by 20 % or more in comparison with that of the free forging process $K_s = \sqrt[3]{\frac{1}{1.15}}$ (2) In cases where the crankshafts are manufactured by a manufacturing process using a surface treatment approved by the Society as well as where the product quality is stable and the fatigue strength is recognized as being superior $K_s = \sqrt[3]{\frac{1}{1+\rho/100}}$ where ρ : Degree of improvement in strength approved by the Society relative to the surface hardening (%) (3) In cases other than **(1)** and **(2)** above $K_s = 1.0$ K_h : Value given by the following **(1)** or **(2)** in accordance with the inside diameter of the crankpins or journals. (1) In cases where the inside diameter is one-third or more than that of the outside diameter $K_h = \sqrt[3]{\frac{1}{1-R^4}}$ where R : Quotient obtained by dividing the inside diameter of a hollow shaft by its outside diameter (2) In cases where the inside diameter is less than	stable and the fatigue strength is considered to be improved by 20 % or more in comparison with that of the free forging process $K_s = \sqrt[3]{\frac{1}{1.15}}$ (2) In cases where the crankshafts are manufactured by a manufacturing process using a surface treatment approved by the Society as well as where the product quality is stable and the fatigue strength is recognized as being superior $K_s = \sqrt[3]{\frac{1}{1+\rho/100}}$ where ρ : Degree of improvement in strength approved by the Society relative to the surface hardening (%) (3) In cases other than **(1)** and **(2)** above $K_s = 1.0$ K_h : Value given by the following **(1)** or **(2)** in accordance with the inside diameter of the crankpins or journals. (1) In cases where the inside diameter is one-third or more than that of the outside diameter $K_h = \sqrt[3]{\frac{1}{1-R^4}}$ where R : Quotient obtained by dividing the inside diameter of a hollow shaft by its outside diameter (2) In cases where the inside diameter is less than	

one-third of the outside diameter $K_h = 1.0$	one-third of the outside diameter $K_h = 1.0$	

Guidance for the survey and construction of steel ships Part D D2 D2.3.1-3

<table>
<tr><th colspan="2">Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="3">

Table D2.3.1-3 Coefficient of Allowable Stress at Fillet

<table>
<tr><td rowspan="5">σ_a
(N/mm^2)</td><td rowspan="2">Stroke cycle of engine</td><td rowspan="2">Type of crankshaft</td><td colspan="3">Shaft diameter ϕ (1) (mm)</td></tr>
<tr><td>$d \geq 200$</td><td>$200 > d \geq 100$</td><td>$100 > d$</td></tr>
<tr><td rowspan="2">2-cycle</td><td>Semi-built-up</td><td>54</td><td>——</td><td>——</td></tr>
<tr><td>Solid</td><td>74</td><td>142-0.34d</td><td rowspan="2">108</td></tr>
<tr><td>4-cycle</td><td>Solid</td><td>83</td><td>133-0.25d</td></tr>
<tr><td>f_m</td><td colspan="5">$1 + \frac{2}{3}\left(\frac{T_s^{(2)}}{440} - 1\right)$</td></tr>
<tr><td rowspan="3">f_s</td><td colspan="5">Manufacturing method</td></tr>
<tr><td>Ordinary method</td><td colspan="2">Method (1) for K_s specified in D2.3.1-2</td><td colspan="2">Method (2) for K_s specified in D2.3.1-2</td></tr>
<tr><td>1</td><td colspan="2">1.15</td><td colspan="2">1+ ρ (3)/100</td></tr>
<tr><td rowspan="3">α
(N/mm^2)</td><td colspan="5">Main bearing material</td></tr>
<tr><td colspan="3">White metal</td><td colspan="2">Aluminum or kelmet</td></tr>
<tr><td colspan="3">0</td><td colspan="2">10</td></tr>
</table>

Notes:
(1) d is to be the actual diameter of crankpin or journal, whichever is larger.
(2)—— T_s signifies the minimum specified tensile strength (N/mm^2) of the crankshaft materials.
—— The limit of T_s for computing f_m is to be in accordance with the requirements in D2.3.1-2.
(3) ρ signifies the degree of strength improvement (%) approved by the Society relative to surface hardening.

</td><td>Wording correction</td></tr>
</table>

Guidance for the survey and construction of steel ships Part D D2 D2.3.2-3

Correction	Present	Note
3 The wording “maximum torque at the shrinkage fit” in **-2(2)** above means, in principle, $M_{T\max}$ shown in **1.3.2-1 of the Annex 2.3.1** **Part D of the Rules** “CALCULATON METHOD OF CRANKSHAFT STRESS”.	**3** The wording “maximum torque at the shrinkage fit” in **-2(2)** above means, in principle, $M_{T\max}$ shown in **1.3.2-1 of the Annex 2.3.1** “**CALCULATON METHOD OF CRANKSHAFT STRESS**”.	Wording correction

Guidance for the survey and construction of steel ships Part D D2 D2.3.2-6

Correction	Present	Note
6 In cases where the dimensions of crankwebs fail to meet the requirements in **-4(1)**, they may be acceptable provided that either the following **(1)** or **(2)** is satisfied. (1) In cases where the maximum torque at the shrinkage fit is evaluated without carrying out a forced vibration calculation including the stern shaftings: $d_h^2 t P_m \geq CTD^2$ where C : 103 for 2-stroke cycle in-line engines 165 for 4-stroke cycle in-line engines P_m : Surface pressure at shrinkage fit, as given by the following formula $P_m = Y\left\{\log_e K + \frac{1}{2}\left(1-\frac{K^2}{r_s^2}\right)\right\}(1-R^2)$ $K = 0.9\sqrt{\frac{206\alpha}{Y}+0.25}$ (2) In cases where the maximum torque at the shrinkage fit is evaluated by carrying out a forced vibration calculation including the stern shaftings: $\alpha \geq \frac{4\times10^3 S_R M_{T\max}\left(1-\frac{R^2}{r_s^2}\right)}{\pi\mu E d_h^2 t\left(1-\frac{1}{r_s^2}\right)(1-R^2)}$ where $M_{T\max}$: Maximum torque at shrinkage fit, as shown in **1.3.2-1 of the Annex 2.3.1 Part D of the Rules** "CALCULATION METHOD OF CRANKSHAFT STRESS" (N・m)	**6** In cases where the dimensions of crankwebs fail to meet the requirements in **-4(1)**, they may be acceptable provided that either the following **(1)** or **(2)** is satisfied. (1) In cases where the maximum torque at the shrinkage fit is evaluated without carrying out a forced vibration calculation including the stern shaftings: $d_h^2 t P_m \geq CTD^2$ where C : 103 for 2-stroke cycle in-line engines 165 for 4-stroke cycle in-line engines P_m : Surface pressure at shrinkage fit, as given by the following formula $P_m = Y\left\{\log_e K + \frac{1}{2}\left(1-\frac{K^2}{r_s^2}\right)\right\}(1-R^2)$ $K = 0.9\sqrt{\frac{206\alpha}{Y}+0.25}$ (2) In cases where the maximum torque at the shrinkage fit is evaluated by carrying out a forced vibration calculation including the stern shaftings: $\alpha \geq \frac{4\times10^3 S_R M_{T\max}\left(1-\frac{R^2}{r_s^2}\right)}{\pi\mu E d_h^2 t\left(1-\frac{1}{r_s^2}\right)(1-R^2)}$ where $M_{T\max}$: Maximum torque at shrinkage fit, as shown in **1.3.2-1 of the Annex 2.3.1 "CALCULATION METHOD OF CRANKSHAFT STRESS"**(N・m)	Wording correction

E :Modulus of longitudinal elasticity (*N/mm*^{2})	E :Modulus of longitudinal elasticity (*N/mm*^{2})	

Guidance for the survey and construction of steel ships Part D D2 D2.3.3

Correction	Present	Note
The wording "to be of sufficient strength" in **2.3.3-2, Part D of the Rules** means to be in accordance with the following **(1)** or **(2)**: (1) The thickness of shaft coupling flanges at the pitch circle of the bolt holes is to be not less than the diameter of the bolts determined by the formula in **2.3.3-1, Part D of the Rules** by using 440 *N/mm*^{2} for T_b. The radius at the fillet transition between the flange and shaft is to be not less than 0.08 *times* the shaft diameter. In this case, the fillet is not to be recessed in way of the bolt heads and nuts. (2) Detailed calculation sheets for the strength of couplings (for the procedures and contents of these calculations, the following **(a)** to **(f)** are to be considered as standards) are to be submitted to the Society for approval. In this case, it is to be verified that the thickness of the coupling flange is larger than the diameter of the bolts determined by the formula in **2.3.3-1, Part D of the Rules** using the tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft material. (a) With the procedures specified in the following **(b)** to **(f)**, it is to be verified that the stress at the coupling is less than the allowable value. As the stress value in this case, comparisons are to be made by applying appropriate safety factors for yield points for bending stress, bending fatigue limits, yield points for torsional stress and torsional fatigue limits of the crankshaft material considering four types of stress, such as the	The wording "to be of sufficient strength" in **2.3.3-2, Part D of the Rules** means to be in accordance with the following **(1)** or **(2)**: (1) The thickness of shaft coupling flanges at the pitch circle of the bolt holes is to be not less than the diameter of the bolts determined by the formula in **2.3.3-1, Part D of the Rules** by using 440 *N/mm*^{2} for T_b. The radius at the fillet transition between the flange and shaft is to be not less than 0.08 *times* the shaft diameter. In this case, the fillet is not to be recessed in way of the bolt heads and nuts. (2) Detailed calculation sheets for the strength of couplings (for the procedures and contents of these calculations, the following **(a)** to **(f)** are to be considered as standards) are to be submitted to the Society for approval. In this case, it is to be verified that the thickness of the coupling flange is larger than the diameter of the bolts determined by the formula in **2.3.3-1, Part D of the Rules** using the tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft material. (a) With the procedures specified in the following **(b)** to **(f)**, it is to be verified that the stress at the coupling is less than the allowable value. As the stress value in this case, comparisons are to be made by applying appropriate safety factors for yield points for bending stress, bending fatigue limits, yield points for torsional stress and torsional fatigue limits of the crankshaft material considering four types of stress, such as the	

maximum bending stress, fluctuating bending stress, the maximum torsional stress and fluctuating torsional stress.	maximum bending stress, fluctuating bending stress, the maximum torsional stress and fluctuating torsional stress.	
(b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in the **Annex D2.3.1** “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS” or **Annex 2.3.1, Part D of the Rules** “CALCULATION METHOD OF CRANKSHAFT STRESS.” Mean torque of this portion is to be determined.	(b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in the **Annex D2.3.1 “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS**” or **Annex 2.3.1 “CALCULATION METHOD OF CRANKSHAFT STRESS**.” Mean torque of this portion is to be determined.	Wording correction
(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph **(b)**, the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)	(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph **(b)**, the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)	
(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.	(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.	
(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the preceding sub-paragraph **(d)** are to be	(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the preceding sub-paragraph **(d)** are to be	

determined, and the maximum bending stress and fluctuating bending stress of this portion are to be determined by dividing above by the section modulus of the coupling flange. (f) Respective tangential forces are to be determined by dividing the maximum torque value and fluctuating torque value determined in the preceding sub-paragraph **(c)** by the diameter of the crankshaft at the root of the coupling flange. The maximum torsional stress and fluctuating torsional stress are to be determined by dividing the above tangential forces by the sectional area of the coupling flange (crankshaft diameter ×π× flange thickness) at the root, and by multiplying the stress concentration factor.	determined, and the maximum bending stress and fluctuating bending stress of this portion are to be determined by dividing above by the section modulus of the coupling flange. (f) Respective tangential forces are to be determined by dividing the maximum torque value and fluctuating torque value determined in the preceding sub-paragraph **(c)** by the diameter of the crankshaft at the root of the coupling flange. The maximum torsional stress and fluctuating torsional stress are to be determined by dividing the above tangential forces by the sectional area of the coupling flange (crankshaft diameter ×π× flange thickness) at the root, and by multiplying the stress concentration factor.	

Guidance for the survey and construction of steel ships Part D D2 D2.6.1-5

Correction	Present	Note
5 The wording "a procedure deemed appropriate by the Society" in **2.6.1-~~8~~7, Part D of the Rules** means the tests specified in **Chapter 11, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.	**5** The wording "a procedure deemed appropriate by the Society" in **2.6.1-8, Part D of the Rules** means the tests specified in **Chapter 11, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.	Wording correction

Guidance for the survey and construction of steel ships Part D D5 D5.3.1

Correction	Present	Note
In the case of bevel gear, the wording “deemed appropriate by the Society” in **5.3.1, Part D of the Rules** means as follows: (1) The bending stress at the root sections of gear teeth and limiting tooth surface stress are to be according to ISO standards or as deemed appropriate by the Society. (2) Strength of the interior of gear teeth The Vickers hardness (*HV*) of the interior of gear teeth is not to be less than the value calculated by the following formula. However, this requirement does not apply to bevel gears for which the tip diameter (outer end) is smaller than 1,100 *mm*: If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79. $HV = 1.11 S_H p \left[\frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1+\left(\frac{z}{w}\right)^2}} \right]$ HV : Vickers hardness S_H : Safety factor for contact stress, is to comply with the requirements in **1.6.3-9 of the Annex ~~D5~~5.3.1 Part D of the Rules** “CALCULATION OF STRENGTH OF ENCLOSED GEARS” ~~**1.6.3-9, Part D of the Rules**~~. p : Real hertzian stress (*MPa*). The upper limit of the value of p used in this calculation is to be 1,500 *MPa.* $p = AS_c$ S_c: Contact stress (*MPa*), to be calculated according to *ISO 10300* standards.	In the case of bevel gear, the wording “deemed appropriate by the Society” in **5.3.1, Part D of the Rules** means as follows: (1) The bending stress at the root sections of gear teeth and limiting tooth surface stress are to be according to ISO standards or as deemed appropriate by the Society. (2) Strength of the interior of gear teeth The Vickers hardness (*HV*) of the interior of gear teeth is not to be less than the value calculated by the following formula. However, this requirement does not apply to bevel gears for which the tip diameter (outer end) is smaller than 1,100 *mm*: If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79. $HV = 1.11 S_H p \left[\frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1+\left(\frac{z}{w}\right)^2}} \right]$ HV : Vickers hardness S_H : Safety factor for contact stress, is to comply with the requirements in **Annex D5.3.1 “CALCULATION OF STRENGTH OF ENCLOSED GEARS” 1.6.3-9, Part D of the Rules.** p : Real hertzian stress (*MPa*). The upper limit of the value of p used in this calculation is to be 1,500 *MPa.* $p = AS_c$ S_c: Contact stress (*MPa*), to be calculated according to *ISO 10300* standards.	Wording correction

A : If S_c is calculated according to *ISO 10300* standards, then the coefficients are to be determined, in consideration of analysis results, by the Society on a case by case basis. In addition, if S_c is calculated according to *ISO 10300* standards, A is to taken as 1.32 w : Half the hertzian contact width (*mm*), to be calculated by the following formula: $w = \frac{p\rho_C}{56300}$ $\rho_C = \frac{\rho_1\rho_2}{\rho_1 + \rho_2}$ $\rho_1 = 0.5d_{vn1}\sin\alpha_n$ $\rho_2 = 0.5d_{vn2}\sin\alpha_n$ $d_{vn1} = d_{m1}\frac{\sqrt{1+u^2}}{u}\frac{1}{\cos^2\beta_{vb}}$ d_{m1} : Mean pitch diameter of pinion （*mm*） u : Gear ratio $\beta_{vb} = \arcsin(\sin\beta_m\cos\alpha_n)$ β_m : Mean spiral angle α_n : Normal pressure angle $d_{vn2} = u^2d_{vn1}$ z : Depth from teeth surface to evaluation point (*mm*)	A : If S_c is calculated according to *ISO 10300* standards, then the coefficients are to be determined, in consideration of analysis results, by the Society on a case by case basis. In addition, if S_c is calculated according to *ISO 10300* standards, A is to taken as 1.32 w : Half the hertzian contact width (*mm*), to be calculated by the following formula: $w = \frac{p\rho_C}{56300}$ $\rho_C = \frac{\rho_1\rho_2}{\rho_1 + \rho_2}$ $\rho_1 = 0.5d_{vn1}\sin\alpha_n$ $\rho_2 = 0.5d_{vn2}\sin\alpha_n$ $d_{vn1} = d_{m1}\frac{\sqrt{1+u^2}}{u}\frac{1}{\cos^2\beta_{vb}}$ d_{m1} : Mean pitch diameter of pinion （*mm*） u : Gear ratio $\beta_{vb} = \arcsin(\sin\beta_m\cos\alpha_n)$ β_m : Mean spiral angle α_n : Normal pressure angle $d_{vn2} = u^2d_{vn1}$ z : Depth from teeth surface to evaluation point (*mm*)	

Guidance for the survey and construction of steel ships Part D D6 D6.2.4-2

Correction	Present	Note
2 The value of k_3 for propeller shafts and stern tube shafts made of stainless steel forgings, etc. other than those indicated in the **Table D6.4, Part D of the Rules** which is for k_3 specified in **6.2.4-2, Part D of the Rules**, is to be in accordance with **Table D6.2.4-2**. Furthermore, this requirement may be applied to propeller shafts Kind 2 and stern tube shafts Kind 2.	**2** The value of k_3 for propeller shafts and stern tube shafts made of stainless steel forgings, etc. other than those indicated in the **Table D6.4** which is for k_3 specified in **6.2.4-2, Part D of the Rules**, is to be in accordance with **Table D6.2.4-2**. Furthermore, this requirement may be applied to propeller shafts Kind 2 and stern tube shafts Kind 2.	Wording correction

Guidance for the survey and construction of steel ships Part D D6 D6.2.7-2

Correction	Present	Note
2 The wording “corrosion resistant materials approved by the Society” in **6.2.7-1(3~~)~~), Part D of the Rules** means those materials which have been subjected to approval tests specified in **2.4.2-5, Part 6 of the ~~“~~Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use~~”~~** and then which obtain type approval of use of machinery and equipment as a corrosion resistant material for propeller shafts or stern tube shafts. In addition, *KSUSF*316, *KSUSF*316*L*, *KSUS*316-*SU* or *KSUS*316*L*-*SU* used for the propeller shafts exceeding 200 *mm* in diameter are also to be in accordance with this requirement to obtain type approval of use of machinery and equipment as a corrosion resistant material for propeller shafts or stern tube shafts.	**2** The wording “corrosion resistant materials approved by the Society” in **6.2.7-1(3)** means those materials which have been subjected to approval tests specified in **2.4.2-5, Part 6** of the “**Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**” and then which obtain type approval of use of machinery and equipment as a corrosion resistant material for propeller shafts or stern tube shafts. In addition, *KSUSF*316, *KSUSF*316*L*, *KSUS*316-*SU* or *KSUS*316*L*-*SU* used for the propeller shafts exceeding 200 *mm* in diameter are also to be in accordance with this requirement to obtain type approval of use of machinery and equipment as a corrosion resistant material for propeller shafts or stern tube shafts.	Wording correction

Guidance for the survey and construction of steel ships Part D D6 D6.2.10-1

Correction	Present	Note
1 The wording "provisions specified elsewhere" in **6.2.10-1(1)(a)i), Part D of the Rules** means the following **(1)** and **(2)** in principle: (1) Shaft alignment calculations are to be carried out in accordance with the requirements in **Annex 6.2.13, Part D of the Rules "CALCULATION OF SHAFT ALIGNMENT"**~~, Part D of the Rules~~. (2) For improving the lubricating condition of the bearing, the following measures are to be taken: (a) A lubricating oil inlet is to be provided at the aft end of the bearing to ensure the forced circulation of the lubricating oil. (b) Either of the following devices to measure stern tube bearing metal temperature at the aft end bottom along with high temperature alarms (with a preset value of 60 °C or below) is to be provided: i) Two or more temperature sensors embedded in the metal; or ii) An embedded temperature sensor, replaceable from inboard the ship, and a spare temperature sensor. In this case, the replacement of such sensors according to procedures submitted beforehand is to be demonstrated. (c) Low level alarms are to be provided for lubricating oil sump tanks.	**1** The wording "provisions specified elsewhere" in **6.2.10-1(1)(a)i), Part D of the Rules** means the following **(1)** and **(2)** in principle: (1) Shaft alignment calculations are to be carried out in accordance with the requirements in **Annex 6.2.13 "CALCULATION OF SHAFT ALIGNMENT", Part D of the Rules**. (2) For improving the lubricating condition of the bearing, the following measures are to be taken: (a) A lubricating oil inlet is to be provided at the aft end of the bearing to ensure the forced circulation of the lubricating oil. (b) Either of the following devices to measure stern tube bearing metal temperature at the aft end bottom along with high temperature alarms (with a preset value of 60 °C or below) is to be provided: i) Two or more temperature sensors embedded in the metal; or ii) An embedded temperature sensor, replaceable from inboard the ship, and a spare temperature sensor. In this case, the replacement of such sensors according to procedures submitted beforehand is to be demonstrated. (c) Low level alarms are to be provided for lubricating oil sump tanks.	Wording correction

Guidance for the survey and construction of steel ships Part D D6 D6.2.10-2

Correction	Present	Note
2 The wording “provisions specified elsewhere” in **6.2.10-1(1)(b)ii), Part D of the Rules** means the following **(1)** and **(2)** in principle: (1) Nominal bearing pressure, etc. calculated in accordance with **Annex 6.2.13, Part D of the Rules “CALCULATION OF SHAFT ALIGNMENT”~~,~~ ~~Part D of the Rules~~** are to be within the allowable limits specified in the Type Approval Certificate. (2) The measures for lubricating condition specified in **-1(2)** are to be taken.	**2** The wording “provisions specified elsewhere” in **6.2.10-1(1)(b)ii), Part D of the Rules** means the following **(1)** and **(2)** in principle: (1) Nominal bearing pressure, etc. calculated in accordance with **Annex 6.2.13 “CALCULATION OF SHAFT ALIGNMENT”, Part D of the Rules** are to be within the allowable limits specified in the Type Approval Certificate. (2) The measures for lubricating condition specified in **-1(2)** are to be taken.	Wording correction

Guidance for the survey and construction of steel ships Part D D8 D8.3.1

Correction	Present	Note
In cases where torsional vibration torque amplitude exceeds the allowable limit T_1 specified in **8.2.4(1~~)~~), Part D of the Rules** above, the barred speed range for avoiding continuous operation specified in **8.3.1, Part D of the Rules** is to be calculated by replacing τ_1 with T_1.	In cases where torsional vibration torque amplitude exceeds the allowable limit T_1 specified in **8.2.4(1)** above, the barred speed range for avoiding continuous operation specified in **8.3.1, Part D of the Rules** is to be calculated by replacing τ_1 with T_1.	Wording correction

Guidance for the survey and construction of steel ships Part D D11 Table D11.2.2-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>
Table D11.2.2-1 Kinds of Tests, Areas Subjected to Tests and Number of Specimens
(Approval Tests for Welding Procedures and Related Specifications Applicable to Welding Work for Windlasses)
<table>
<tr><th>Kind of test</th><th>Areas subjected to tests or number of specimens</th></tr>
<tr><td>Visual inspection</td><td>Whole length of welding joints</td></tr>
<tr><td>Non-destructive inspection</td><td>Whole length of welding joints (1)</td></tr>
<tr><td>Tensile test</td><td>2</td></tr>
<tr><td>Bend test</td><td>4(2)</td></tr>
<tr><td>Impact test (sets)</td><td>3–8(3)(4)</td></tr>
<tr><td>Macro-Structure inspection</td><td>1</td></tr>
<tr><td>Hardness test</td><td>1(5)</td></tr>
</table>
Notes:
(1) Internal inspections by radiographic examination or ultrasonic examination, and surface inspections by magnetic particle examination or liquid penetrant examination are to be carried out.
(2) Two specimens are to be taken from the root bend and face bend respectively. However, the root and face bends may be substituted for by four side bends for plates and pipes (or tubes) with a thickness of 12 *mm* or more regardless of **Table D11.2.2-1**.
(3) Impact tests may be omitted when welding base metals which have no requirements related to testing temperature during impact tests and minimum mean absorbed energy.
(4) **Fig~~ 4~~. M4.2** and **Fig. M4.3, Part M of the Rules** are to be applied correspondingly to the position of the notch of the impact test specimen.
(5) Hardness tests may be omitted when welding austenitic stainless steels or materials for which requirements related to yield point or proof stress is less than 355 N/mm^2.
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(3) Impact tests may be omitted when welding base metals which have no requirements related to testing temperature during impact tests and minimum mean absorbed energy.
(4) **Fig 4.2** and **Fig. M4.3, Part M of the Rules** are to be applied correspondingly to the position of the notch of the impact test specimen.
(5) Hardness tests may be omitted when welding austenitic stainless steels or materials for which requirements related to yield point or proof stress is less than 355 N/mm^2.
</td>
<td>Wording correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part D D11 D11.4.6-1

Correction	Present	Note
1 The wording "important welds other than those specified in **11.4.5 of the Rules**" referred to in **11.4.6, Part D of the Rules** means, for example, the following parts with a plate thickness of 6 *mm* or more: (1) Welds between flat end plates or cover plates and shell plates (2) Welds between furnaces or ogee rings and shell plates (3) Welds for manholes (4) Welds for nozzles	**1** The wording "important welds other than those specified in **11.4.5**" referred to in **11.4.6, Part D of the Rules** means, for example, the following parts with a plate thickness of 6 *mm* or more: (1) Welds between flat end plates or cover plates and shell plates (2) Welds between furnaces or ogee rings and shell plates (3) Welds for manholes (4) Welds for nozzles	Wording correction

Guidance for the survey and construction of steel ships Part D D12 D12.1.6-1

Correction	Present	Note
1 The wording "requirements specified otherwise" in **12.~~16~~1.6, Part D of the Rules** means as follows. (1) In cases where rubber hoses, Teflon hoses or nylon hoses are used for the following pipes, materials approved in accordance with **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** are to be used. (a) Pipes of Group I or Group II (b) Pipes likely to cause fire or flooding in cases where they rupture (2) Only plastic pipes (including vinyl pipes) approved by the Society in accordance with **Chapter 6, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** are to be used. (3) In cases where aluminum alloy pipes are used; the following requirements are to be complied with: (a) As a rule, aluminum alloy pipes are to be in accordance with the requirements of the code deemed appropriate by the Society, and are to be	**1** The wording "requirements specified otherwise" in **12.16, Part D of the Rules** means as follows. (1) In cases where rubber hoses, Teflon hoses or nylon hoses are used for the following pipes, materials approved in accordance with **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** are to be used. (a) Pipes of Group I or Group II (b) Pipes likely to cause fire or flooding in cases where they rupture (2) Only plastic pipes (including vinyl pipes) approved by the Society in accordance with **Chapter 6, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** are to be used. (3) In cases where aluminum alloy pipes are used; the following requirements are to be complied with: (a) As a rule, aluminum alloy pipes are to be in accordance with the requirements of the code deemed appropriate by the Society, and are to be	Reference correction

of seamless drawn pipes or seamless extruded pipes. (b) Aluminum alloy pipes are not to be used for any of the following applications: i) As a rule, pipes with a design temperature exceeding 150 °C. ii) Any pipes which penetrates either an “*A*-Class division” or a “*B*-Class division.” iii) Piping in which the use of copper alloy pipes is prohibited by **Table D12.2, Part D of the Rules**. (c) The required thickness of aluminum alloy pipes subject to internal pressure are to be in accordance with the following requirements: Pipe thickness is to be determined using the formula in **12.2.1-1, Part D of the Rules**. In this case, allowable stress (*f*) is to be the smallest of the following values. However, in cases where the design temperature is not in the creep region of the material, no consideration needs to be given to the value of f_3. $f_1 = \frac{R_{20}}{4.0}$, $f_2 = \frac{E_t}{1.5}$, $f_3 = \frac{S_R}{1.6}$ where R_{20} : Specified minimum tensile strength (N/mm^2) of the material at room temperature (less than 50 °C) E_t : 0.2 % proof stress (N/mm^2) of the material at design temperature S_R : Mean value of creep breaking stress (N/mm^2) of the material after 100,000 *hours* at design temperature	of seamless drawn pipes or seamless extruded pipes. (b) Aluminum alloy pipes are not to be used for any of the following applications: i) As a rule, pipes with a design temperature exceeding 150 °C. ii) Any pipes which penetrates either an “*A*-Class division” or a “*B*-Class division.” iii) Piping in which the use of copper alloy pipes is prohibited by **Table D12.2, Part D of the Rules**. (c) The required thickness of aluminum alloy pipes subject to internal pressure are to be in accordance with the following requirements: Pipe thickness is to be determined using the formula in **12.2.1-1, Part D of the Rules**. In this case, allowable stress (*f*) is to be the smallest of the following values. However, in cases where the design temperature is not in the creep region of the material, no consideration needs to be given to the value of f_3. $f_1 = \frac{R_{20}}{4.0}$, $f_2 = \frac{E_t}{1.5}$, $f_3 = \frac{S_R}{1.6}$ where R_{20} : Specified minimum tensile strength (N/mm^2) of the material at room temperature (less than 50 °C) E_t : 0.2 % proof stress (N/mm^2) of the material at design temperature S_R : Mean value of creep breaking stress (N/mm^2) of the material after 100,000 *hours* at design temperature	

Guidance for the survey and construction of steel ships Part D D12 D12.2.2-1

Correction	Present	Note
1 In cases where the requirement for minimum thickness of the corrosion resistant alloy steel pipes in **12.2.2-1, Part D of the Rules** is applied, the minimum thickness of any stainless steel pipes used for cargo oil pipes is to be the value specified in **S5.1.6-1, Part S**~~.~~ **of the Guidance**.	**1** In cases where the requirement for minimum thickness of the corrosion resistant alloy steel pipes in **12.2.2-1, Part D of the Rules** is applied, the minimum thickness of any stainless steel pipes used for cargo oil pipes is to be the value specified in **S5.1.6-1, Part S**.	Wording correction

Guidance for the survey and construction of steel ships Part D D12 D12.6.1-2

Correction	Present	Note
2 The Society may waive the presence of the Surveyor at the hydrostatic tests required by in **12.6.1-2** and **-3**~~ of **12.6.1**~~**, Part D of the Rules** for small bore pipes (less than about 15 *mm*), depending on the application.	**2** The Society may waive the presence of the Surveyor at the hydrostatic tests required by in **-2** and **-3** of **12.6.1, Part D of the Rules** for small bore pipes (less than about 15 *mm*), depending on the application.	Wording correction

Guidance for the survey and construction of steel ships Part D D12 D12.6.1-3

Correction	Present	Note
3 The term "integral" referred to in **12.6.1-2** and **-3**~~ of **12.6.1**~~**, Part D of the Rules** means, for example, welded fittings.	**3** The term "integral" referred to in **-2** and **-3** of **12.6.1, Part D of the Rules** means, for example, welded fittings.	Wording correction

Guidance for the survey and construction of steel ships Part D D13 D13.8.5-3

Correction	Present	Note
3 The wording “the systems to have constructions and functions deemed appropriate by the Society” in **13.8.5-1(4), Part D of the Rules** means those systems complying with the following requirements and being of a type approved by the Society in accordance with **Chapter 5, Part 7 of** Guidance for **the Approval and Type Approval of Materials and Equipment for Marine Use** or those systems approved by an organisation deemed appropriate by the Society in accordance with the Resolution *MSC.*188(79), as amended. (1) The systems are to have sufficient corrosion resistance with consideration being given to the locations where the systems are to be installed and are to be maintain their functionality under expected service temperatures. In addition, any parts of the systems which may be exposed to cargo or bilge containing cargo, such as detectors, etc., are to be sufficiently able to cope with different conditions such as acidity, alkalinity, dust, etc. with consideration being given to the intended cargoes. (2) Protection of the enclosures of electrical components for the systems is to satisfy the following **(a)** to **(c)**: (a) The requirements of IP68 for those installed in spaces, tanks or cargo holds. This includes all adjacent spaces considered to be simultaneously flooded under damage stability calculations of the spaces/tanks/cargo holds required by the provisions of **2.3, Part 1, Part C of the Rules** or the requirements for ships to be assigned reduced freeboard in accordance with **Part V of the Rules**; (b) The requirements of IP56 for those installed on	**3** The wording “the systems to have constructions and functions deemed appropriate by the Society” in **13.8.5-1(4), Part D of the Rules** means those systems complying with the following requirements and being of a type approved by the Society in accordance with **Chapter 5, Part 7 of the Approval and Type Approval of Materials and Equipment for Marine Use** or those systems approved by an organisation deemed appropriate by the Society in accordance with the Resolution *MSC.*188(79), as amended. (1) The systems are to have sufficient corrosion resistance with consideration being given to the locations where the systems are to be installed and are to be maintain their functionality under expected service temperatures. In addition, any parts of the systems which may be exposed to cargo or bilge containing cargo, such as detectors, etc., are to be sufficiently able to cope with different conditions such as acidity, alkalinity, dust, etc. with consideration being given to the intended cargoes. (2) Protection of the enclosures of electrical components for the systems is to satisfy the following **(a)** to **(c)**: (a) The requirements of IP68 for those installed in spaces, tanks or cargo holds. This includes all adjacent spaces considered to be simultaneously flooded under damage stability calculations of the spaces/tanks/cargo holds required by the provisions of **2.3, Part 1, Part C of the Rules** or the requirements for ships to be assigned reduced freeboard in accordance with **Part V of the Rules**; (b) The requirements of IP56 for those installed on	Wording correction

exposed decks above the spaces/tanks/cargo holds; and (c) The provisions of **Part H of the Rules** for any of those not specified in **(a)** or **(b)** above. (3) Electrical installations for the systems installed in the following areas are to be of an intrinsically safe type or safe type of an appropriate apparatus group and temperature class suitable for the cargo carried, and the maximum surface temperature of the installations is not to exceed 85℃, except electrical installations installed in ships designed only to carry cargo which are not combustible or explosive atmosphere. In addition, in cases where a ship is designed to carry only limited kinds of cargo, the maximum surface temperature may be appropriately relaxed depending on the kind of cargo. In this case, such limitations relating to cargo are to be documented in booklets for cargo operations. Finally, those electric installations installed at the edges of the following areas are to be approved at the discretion of the Society with due consideration being given to their design with respect to gas-tightness, etc. (a) Cargo holds (b) Enclosed spaces adjacent to cargo holds having openings without a gas-tight or watertight door/hatch and the like into a hold (c) Areas within 3 *m* of any cargo hold mechanical exhaust ventilation outlet (4) For electrical installations for the systems which are installed in ships intended for carrying dangerous goods, the provisions of **Chapter 19, Part R of the Rules** are to be referred to. (5) Detectors are to be capable of indicating water level within an accuracy of ±100 *mm*. Time delays are to be	exposed decks above the spaces/tanks/cargo holds; and (c) The provisions of **Part H of the Rules** for any of those not specified in **(a)** or **(b)** above. (3) Electrical installations for the systems installed in the following areas are to be of an intrinsically safe type or safe type of an appropriate apparatus group and temperature class suitable for the cargo carried, and the maximum surface temperature of the installations is not to exceed 85℃, except electrical installations installed in ships designed only to carry cargo which are not combustible or explosive atmosphere. In addition, in cases where a ship is designed to carry only limited kinds of cargo, the maximum surface temperature may be appropriately relaxed depending on the kind of cargo. In this case, such limitations relating to cargo are to be documented in booklets for cargo operations. Finally, those electric installations installed at the edges of the following areas are to be approved at the discretion of the Society with due consideration being given to their design with respect to gas-tightness, etc. (a) Cargo holds (b) Enclosed spaces adjacent to cargo holds having openings without a gas-tight or watertight door/hatch and the like into a hold (c) Areas within 3 *m* of any cargo hold mechanical exhaust ventilation outlet (4) For electrical installations for the systems which are installed in ships intended for carrying dangerous goods, the provisions of **Chapter 19, Part R of the Rules** are to be referred to. (5) Detectors are to be capable of indicating water level within an accuracy of ±100 *mm*. Time delays are to be	

so incorporated into alarm systems, in order to prevent spurious alarms due to any sloshing effects associated with ship motion, so that alarms will activate after detecting water level continuously for a standard period of not less than 10 *seconds*. The accuracy of these detectors may be set on the basis of seawater density. (6) The systems are to be of a continuously self-monitoring type that also monitors any detectors. Audible and visual alarms are to be activated when any faults are detected. In this requirement, the term "fault" refers to problems such as open circuits, short circuits, loss of power supplies and CPU failures. The audible alarms are to be capable of being muted. However, visual alarms are to remain active until the malfunction has been cleared and such alarms are not to be capable of being turned off by hand. In addition, the systems are to be provided with means for testing their respective detectors when holds are empty. (7) Alarm panels for the systems are to be provided with a switch for the testing of all audible and visual alarms. This switch is to return to the off position automatically when not being operated. (8) The systems are to be supplied with electrical power from two independent sources. Any failure of two electrical power supplies is to be indicated by an alarm on the navigation bridge. In cases where secondary electrical power is supplied by dedicated batteries, such batteries are to be in accordance with the following **(a)** to **(c)**: (a) Batteries are to have a capacity for a period of at least 18 *hours* and they are to be continuously charged; (b) Batteries are to be arranged and located in	so incorporated into alarm systems, in order to prevent spurious alarms due to any sloshing effects associated with ship motion, so that alarms will activate after detecting water level continuously for a standard period of not less than 10 *seconds*. The accuracy of these detectors may be set on the basis of seawater density. (6) The systems are to be of a continuously self-monitoring type that also monitors any detectors. Audible and visual alarms are to be activated when any faults are detected. In this requirement, the term "fault" refers to problems such as open circuits, short circuits, loss of power supplies and CPU failures. The audible alarms are to be capable of being muted. However, visual alarms are to remain active until the malfunction has been cleared and such alarms are not to be capable of being turned off by hand. In addition, the systems are to be provided with means for testing their respective detectors when holds are empty. (7) Alarm panels for the systems are to be provided with a switch for the testing of all audible and visual alarms. This switch is to return to the off position automatically when not being operated. (8) The systems are to be supplied with electrical power from two independent sources. Any failure of two electrical power supplies is to be indicated by an alarm on the navigation bridge. In cases where secondary electrical power is supplied by dedicated batteries, such batteries are to be in accordance with the following **(a)** to **(c)**: (a) Batteries are to have a capacity for a period of at least 18 *hours* and they are to be continuously charged; (b) Batteries are to be arranged and located in	

accordance with **3.3.5, Part H of the Rules**, and may be integrated into the system; and (c) Any failures of the battery systems, including battery charging systems specified in above **(a)**, are to be indicated by an alarm on the navigation bridge.	accordance with **3.3.5, Part H of the Rules**, and may be integrated into the system; and (c) Any failures of the battery systems, including battery charging systems specified in above **(a)**, are to be indicated by an alarm on the navigation bridge.	

Guidance for the survey and construction of steel ships Part D D13 D13.8.5-7

Correction	Present	Note
7 Manuals specified in **13.8.5-4, Part D of the Rules** are to contain the following information and operational instructions: (1) Descriptions of the equipment in the system together with listings of procedures for checking that, as far as practicable, each item of equipment is working properly during any stage of ship operation. (2) Evidence that the system has been approved in accordance with **Chapter 5, Part 7 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** or the Resolution *MSC.*188(79), as amended. (3) Line diagrams of the system showing equipment positions (4) Instructions for operator training, setting, securing, protecting and testing. (5) Information regarding the types of cargo that guarantees performance. (In cases where electrical installations are required to be of an intrinsically safe, certificates verifying this are to be included.) (6) Temperature range for which the equipment is suitable. (7) Procedures to be followed in the event equipment in the system is not functioning properly. (8) Maintenance requirements for the system.	**7** Manuals specified in **13.8.5-4, Part D of the Rules** are to contain the following information and operational instructions: (1) Descriptions of the equipment in the system together with listings of procedures for checking that, as far as practicable, each item of equipment is working properly during any stage of ship operation. (2) Evidence that the system has been approved in accordance with **Chapter 5, Part 7 of the Approval and Type Approval of Materials and Equipment for Marine Use** or the Resolution *MSC.*188(79), as amended. (3) Line diagrams of the system showing equipment positions (4) Instructions for operator training, setting, securing, protecting and testing. (5) Information regarding the types of cargo that guarantees performance. (In cases where electrical installations are required to be of an intrinsically safe, certificates verifying this are to be included.) (6) Temperature range for which the equipment is suitable. (7) Procedures to be followed in the event equipment in the system is not functioning properly. (8) Maintenance requirements for the system.	Wording correction

Guidance for the survey and construction of steel ships Part D D14 D14.2.7-2

Correction	Present	Note
2 Pipes for measuring instruments and remote control equipment Steel pipes for measuring instruments and remote control equipment provided in cargo oil tanks are to have minimum thickness of Schedule 80 specified in **Table K4.16, ~~Park~~Part K of the Rules**, except in cases where such pipes have openings inside cargo oil tanks.	**2** Pipes for measuring instruments and remote control equipment Steel pipes for measuring instruments and remote control equipment provided in cargo oil tanks are to have minimum thickness of Schedule 80 specified in **Table K4.16, Park K of the Rules**, except in cases where such pipes have openings inside cargo oil tanks.	Wording correction

Guidance for the survey and construction of steel ships Part D D14 D14.2.8-3

Correction	Present	Note
3 In cases where level indicating devices are provided for those sounding devices specified in **14.2.8, Part D of the Rules**, such devices are to be of a type approved by the Society in accordance with **Chapter 4, Part 7 of ~~“~~the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use~~”~~**, which is separately specified. And, all approved devices are to be made public on the “**List of approved materials and equipment**”.	**3** In cases where level indicating devices are provided for those sounding devices specified in **14.2.8, Part D of the Rules**, such devices are to be of a type approved by the Society in accordance with **Chapter 4, Part 7** of “**Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**”, which is separately specified. And, all approved devices are to be made public on the “**List of approved materials and equipment**”.	Wording correction

Guidance for the survey and construction of steel ships Part D D16 D16.2.4-1

Correction	Present	Note
1 The continuous duty pull specified in **16.2.4-2(2)(a) of the Rules** is based on the following conditions: (1) Ordinary stockless anchors are used. (2) The anchor masses are assumed to be the masses as given in **14.3, Part 1, Part C of the Rules** and **Chapter 2, Part L of the Rules**. (3) One anchor is hoisted at a time. (4) The effects of buoyancy and hawse pipe efficiency (assumed to be 70 %) have been accounted for.	**1** The continuous duty pull specified in **16.2.4-2(2)(a)** is based on the following conditions: (1) Ordinary stockless anchors are used. (2) The anchor masses are assumed to be the masses as given in **14.3, Part 1, Part C of the Rules** and **Chapter 2, Part L of the Rules**. (3) One anchor is hoisted at a time. (4) The effects of buoyancy and hawse pipe efficiency (assumed to be 70 %) have been accounted for.	Wording correction

Guidance for the survey and construction of steel ships Part D D17 D17.1.1-4

Correction	Present	Note
4 Ammonia refrigerating machinery drawings and data Drawings and data to be submitted, in addition to those specified in **17.1.2** **of the Rules**, are generally as follows: (a) *R*717 Refrigerant Piping Diagrams (b) Gas Detector Arrangements (c) General Arrangement of Refrigerating Machinery Compartments	**4** Ammonia refrigerating machinery drawings and data Drawings and data to be submitted, in addition to those specified in **17.1.2**, are generally as follows: (a) *R*717 Refrigerant Piping Diagrams (b) Gas Detector Arrangements (c) General Arrangement of Refrigerating Machinery Compartments	Wording correction

Guidance for the survey and construction of steel ships Part D D17 D17.1.1-10

Correction	Present	Note
10 Gas expulsion system Gas expulsion systems consisting of ventilation systems, gas absorption systems, water screening systems and gas absorption water tanks are to be installed in refrigerating machinery compartments, in accordance with **(1)** to **(5)** below so that any accidentally leaked gas can be quickly expelled from the such compartments. (1) Mechanical ventilation systems which comply with the following requirements are, as a rule, to be installed in refrigerating machinery compartments so that these spaces can be ventilated all times. (a) Such ventilation systems are to have enough capacity to ensure at least 30 air changes per hour in refrigerating machinery compartments. (b) Such ventilation systems are to be independent of other ventilation systems on board ship, and are to be capable of being operated from outside refrigerating machinery compartments. (c) Exhaust outlets are to be installed at horizontal distances of more than 10 *m* from the nearest air intake openings, openings of accommodation spaces, service spaces and control stations, and at	**10** Gas expulsion system Gas expulsion systems consisting of ventilation systems, gas absorption systems, water screening systems and gas absorption water tanks are to be installed in refrigerating machinery compartments, in accordance with **(1)** to **(5)** below so that any accidentally leaked gas can be quickly expelled from the such compartments. (1) Mechanical ventilation systems which comply with the following requirements are, as a rule, to be installed in refrigerating machinery compartments so that these spaces can be ventilated all times. (a) Such ventilation systems are to have enough capacity to ensure at least 30 air changes per hour in refrigerating machinery compartments. (b) Such ventilation systems are to be independent of other ventilation systems on board ship, and are to be capable of being operated from outside refrigerating machinery compartments. (c) Exhaust outlets are to be installed at horizontal distances of more than 10 *m* from the nearest air intake openings, openings of accommodation spaces, service spaces and control stations, and at	

vertical distances of more than 4 *m* from weather decks. (d) Air intake openings are to be provided at low positions and exhaust openings are to be provided at high positions in refrigerating machinery compartments so that no gas accumulates inside compartments and exhaust ducts. (e) Exhaust fans are to be of a construction that does not allow any sparks to be generated complying with **R4.5.4-1(2~~).~~), Part R of the Guidance.** Protection screens of not more than 13*mm* square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck. For the purpose of this requirement, as a rule, motors for driving the fans are to be of the exterior mounted type. (2) Independent ventilation systems are to be installed in passageways leading to refrigerating machinery compartments. However, if ventilation systems, such as the ones specified in **(1)** above, are provided with ducts so that they can be used for expelling air from passageways, then independent ventilation systems need not be installed. (3) Gas absorption systems satisfying any of the requirements given below, capable of excluding leaked gases quickly from the refrigerating machinery compartments, and capable of being operated from outside such compartments, are to be installed. (a) Scrubbers Scrubbers are to be designed with processing capacities adequate enough to restrict gas concentration at exhaust fans to well below 25 *ppm* as well as absorb ammonia in the largest receivers within 30 *minutes*; and,	vertical distances of more than 4 *m* from weather decks. (d) Air intake openings are to be provided at low positions and exhaust openings are to be provided at high positions in refrigerating machinery compartments so that no gas accumulates inside compartments and exhaust ducts. (e) Exhaust fans are to be of a construction that does not allow any sparks to be generated complying with **R4.5.4-1(2).** Protection screens of not more than 13*mm* square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck. For the purpose of this requirement, as a rule, motors for driving the fans are to be of the exterior mounted type. (2) Independent ventilation systems are to be installed in passageways leading to refrigerating machinery compartments. However, if ventilation systems, such as the ones specified in **(1)** above, are provided with ducts so that they can be used for expelling air from passageways, then independent ventilation systems need not be installed. (3) Gas absorption systems satisfying any of the requirements given below, capable of excluding leaked gases quickly from the refrigerating machinery compartments, and capable of being operated from outside such compartments, are to be installed. (a) Scrubbers Scrubbers are to be designed with processing capacities adequate enough to restrict gas concentration at exhaust fans to well below 25 *ppm* as well as absorb ammonia in the largest receivers within 30 *minutes*; and,	Wording correction

Pumps for scrubbers are to start automatically when gas concentrations in refrigerating machinery compartments exceed 300 *ppm*. (b) Water sprinkler systems The quantity of sprinkler water is to be such that any leaked gases can be satisfactorily absorbed; and, Nozzles are to be of types approved by the Society. As a rule, nozzles are to be positioned so that their range covers all refrigerating machinery in such compartments; and, When gas concentrations in refrigerating machinery compartments exceed 300 *ppm*, pumps for sprinkler water are to start automatically. (4) All doors of refrigerating machinery compartments are to be provided with water screening systems which can be operated from outside such compartments. (5) Gas absorption water tanks complying with the requirements given below, are to be installed so that any leaked liquid ammonia can be quickly recovered. (a) Such tanks are to be of a capacity sufficient enough to fully recover all of the water for absorbing refrigerants found in at least one refrigerating machinery unit. (b) Automatic water supply systems are to be installed in such tanks so that fully-filled condition of such tanks is always maintained. (c) Overflow from such tanks is to be diluted or neutralized and then discharged directly overboard, and pipes handling such overflows are not to pass through accommodation spaces. (d) Means are to be provided in such tanks to recover	Pumps for scrubbers are to start automatically when gas concentrations in refrigerating machinery compartments exceed 300 *ppm*. (b) Water sprinkler systems The quantity of sprinkler water is to be such that any leaked gases can be satisfactorily absorbed; and, Nozzles are to be of types approved by the Society. As a rule, nozzles are to be positioned so that their range covers all refrigerating machinery in such compartments; and, When gas concentrations in refrigerating machinery compartments exceed 300 *ppm*, pumps for sprinkler water are to start automatically. (4) All doors of refrigerating machinery compartments are to be provided with water screening systems which can be operated from outside such compartments. (5) Gas absorption water tanks complying with the requirements given below, are to be installed so that any leaked liquid ammonia can be quickly recovered. (a) Such tanks are to be of a capacity sufficient enough to fully recover all of the water for absorbing refrigerants found in at least one refrigerating machinery unit. (b) Automatic water supply systems are to be installed in such tanks so that fully-filled condition of such tanks is always maintained. (c) Overflow from such tanks is to be diluted or neutralized and then discharged directly overboard, and pipes handling such overflows are not to pass through accommodation spaces. (d) Means are to be provided in such tanks to recover	

any ammonia drainage generated in refrigerating machinery compartments. In addition, appropriate drain traps are to be provided to prevent any reverse flow of gas from such tanks. (e) All vent pipes of such tanks are to be connected to exhaust pipes of those ventilation systems specified in **(1)** above.	any ammonia drainage generated in refrigerating machinery compartments. In addition, appropriate drain traps are to be provided to prevent any reverse flow of gas from such tanks. (e) All vent pipes of such tanks are to be connected to exhaust pipes of those ventilation systems specified in **(1)** above.	

Guidance for the survey and construction of steel ships Part D D18 D18.7.1-2

Correction	Present	Note
2 The wording "The procedures for these tests are to be deemed appropriate by the Society" specified in **18.7.1(1), Part D of the Rules** means those procedures in accordance with **Chapter 1, Part 7 of "the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use."**	**2** The wording "The procedures for these tests are to be deemed appropriate by the Society" specified in **18.7.1(1), Part D of the Rules** means those procedures in accordance with **Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use."**	Wording correction

Guidance for the survey and construction of steel ships Part D Annex D2.3.1, 1.2.1

Correction	Present	Note
Stress at fillets due to bending moments is to be obtained by the following formulae: $\sigma_x = 1.08\alpha_{KB}\frac{M_W}{Z}$ (1) $\sigma_y = 0.285\alpha_{KB}\frac{M_W}{Z}$ (2) where σ_x : Axial stress due to bending moment at fillet σ_y : Circumferential stress due to bending moment at fillet α_{KB} : Stress concentration factor for bending, as shown in **D2.3.1-5(1) of the Guidance** Z : Section modulus of crankpin or journal M_W : Bending moment at the centre of the web thickness, parallel to the crankplane (1) As for those external forces acting on crankshafts, combustion pressure and those inertial forces of reciprocating and unbalanced rotating masses are to only be considered. It is assumed that these external forces act, as a concentrated load, on the centre of crankpin bearings, and that all shafts are supported at the centre of main bearings. (2) Bending moments (M_i) at supports are to be obtained by the following formulae. (*See* **Fig. 1**) Calculations are to be made so that they include at least 3 spans: the span of the crank throw being considered, the span directly afore such crank throw, and the span directly abaft such crank throw. Other spans afore or abaft may be included in the calculations as deemed necessary. $\frac{3}{32}\frac{{L_{i-1}}^2}{L_i}M_{i-2}$	Stress at fillets due to bending moments is to be obtained by the following formulae: $\sigma_x = 1.08\alpha_{KB}\frac{M_W}{Z}$ (1) $\sigma_y = 0.285\alpha_{KB}\frac{M_W}{Z}$ (2) where σ_x : Axial stress due to bending moment at fillet σ_y : Circumferential stress due to bending moment at fillet α_{KB} : Stress concentration factor for bending, as shown in **D2.3.1-5(1)** Z : Section modulus of crankpin or journal M_W : Bending moment at the centre of the web thickness, parallel to the crankplane (1) As for those external forces acting on crankshafts, combustion pressure and those inertial forces of reciprocating and unbalanced rotating masses are to only be considered. It is assumed that these external forces act, as a concentrated load, on the centre of crankpin bearings, and that all shafts are supported at the centre of main bearings. (2) Bending moments (M_i) at supports are to be obtained by the following formulae. (*See* **Fig. 1**) Calculations are to be made so that they include at least 3 spans: the span of the crank throw being considered, the span directly afore such crank throw, and the span directly abaft such crank throw. Other spans afore or abaft may be included in the calculations as deemed necessary. $\frac{3}{32}\frac{{L_{i-1}}^2}{L_i}M_{i-2}$	Wording correction

$+\left\{L_i-\frac{3}{32}\frac{{L_{i-1}}^2}{L_i}\left(1+\frac{L_{i-1}}{L_i}\right)-\frac{3L_i}{32}\left(1+\frac{L_i}{L_{i+1}}\right)\right\}M_{i-1}$ $+\left[2(L_i+L_{i+1})+\frac{3}{32}\left\{\frac{{L_{i-1}}^3}{{L_i}^2}+L_i\left(1+\frac{L_i}{L_{i-1}}\right)^2+L_{i+1}\right\}\right]M_i$ $+\left[L_{i+1}-\frac{3}{32}\left\{\frac{{L_i}^2}{L_{i+1}}\left(1+\frac{L_i}{L_{i+1}}\right)+L_{i+1}\left(1+\frac{L_{i+1}}{L_{i+2}}\right)\right\}\right]M_{i+1}$ $+\frac{3}{32}\frac{{L_{i+1}}^2}{L_{i+2}}M_{i+2}$ $+\frac{3}{32}\left\{\frac{{L_{i-1}}^2}{L_i}\sum_j W_{i-1\cdot j}a_{i-1\cdot j}-L_i\left(1+\frac{L_i}{L_{i+1}}\right)\sum_j W_{i\cdot j}a_{i\cdot j}\right.$ $+\frac{{L_{i-1}}^3}{{L_i}^2}\sum_j W_{i\cdot j}(L_i-a_{i\cdot j})+L_{i+1}\sum_j W_{i+1\cdot j}a_{i+1\cdot j}$ $-\frac{{L_i}^2}{L_{i+1}}\left(1+\frac{L_i}{L_{i+1}}\right)\sum_j W_{i+1\cdot j}(L_{i+1}-a_{i+1\cdot j})$ $\left.+\frac{{L_{i-1}}^2}{L_{i+2}}\sum_j W_{i+2\cdot j}(L_{i+2}-a_{i+2\cdot j})\right\}+\frac{1}{L_i}\sum_j W_{i\cdot j}a_{i\cdot j}({L_i}^2-{a_{i\cdot j}}^2)$ $+\frac{1}{L_{i+1}}\sum_j W_{i+1\cdot j}a_{i+1\cdot j}(L_{i+1}-a_{i+1\cdot j})(2L_{i+1}-a_{i+1\cdot j})=0$ (3) (3) Bending moments on the centre of crank webs (M_W) are to be obtained by the following formulae: (*See* **Fig. 2**) $M_{WFi}=\frac{L_i-l_{WFi}}{L_i}M_{i-1}+\frac{l_{WFi}}{L_i}M_i+l_{WFi}\sum_j\left(1-\frac{a_{i\cdot j}}{L_i}\right)W_{i\cdot j}$ (4) $M_{WAi}=\frac{L_i-l_{WAi}}{L_i}M_{i-1}+\frac{l_{WAi}}{L_i}M_i+(L_i-l_{WAi})\sum_j\frac{a_{i\cdot j}}{L_i}W_{i\cdot j}$	$+\left\{L_i-\frac{3}{32}\frac{{L_{i-1}}^2}{L_i}\left(1+\frac{L_{i-1}}{L_i}\right)-\frac{3L_i}{32}\left(1+\frac{L_i}{L_{i+1}}\right)\right\}M_{i-1}$ $+\left[2(L_i+L_{i+1})+\frac{3}{32}\left\{\frac{{L_{i-1}}^3}{{L_i}^2}+L_i\left(1+\frac{L_i}{L_{i-1}}\right)^2+L_{i+1}\right\}\right]M_i$ $+\left[L_{i+1}-\frac{3}{32}\left\{\frac{{L_i}^2}{L_{i+1}}\left(1+\frac{L_i}{L_{i+1}}\right)+L_{i+1}\left(1+\frac{L_{i+1}}{L_{i+2}}\right)\right\}\right]M_{i+1}$ $+\frac{3}{32}\frac{{L_{i+1}}^2}{L_{i+2}}M_{i+2}$ $+\frac{3}{32}\left\{\frac{{L_{i-1}}^2}{L_i}\sum_j W_{i-1\cdot j}a_{i-1\cdot j}-L_i\left(1+\frac{L_i}{L_{i+1}}\right)\sum_j W_{i\cdot j}a_{i\cdot j}\right.$ $+\frac{{L_{i-1}}^3}{{L_i}^2}\sum_j W_{i\cdot j}(L_i-a_{i\cdot j})+L_{i+1}\sum_j W_{i+1\cdot j}a_{i+1\cdot j}$ $-\frac{{L_i}^2}{L_{i+1}}\left(1+\frac{L_i}{L_{i+1}}\right)\sum_j W_{i+1\cdot j}(L_{i+1}-a_{i+1\cdot j})$ $\left.+\frac{{L_{i-1}}^2}{L_{i+2}}\sum_j W_{i+2\cdot j}(L_{i+2}-a_{i+2\cdot j})\right\}+\frac{1}{L_i}\sum_j W_{i\cdot j}a_{i\cdot j}({L_i}^2-{a_{i\cdot j}}^2)$ $+\frac{1}{L_{i+1}}\sum_j W_{i+1\cdot j}a_{i+1\cdot j}(L_{i+1}-a_{i+1\cdot j})(2L_{i+1}-a_{i+1\cdot j})=0$ (3) (3) Bending moments on the centre of crank webs (M_W) are to be obtained by the following formulae: (*See* **Fig. 2**) $M_{WFi}=\frac{L_i-l_{WFi}}{L_i}M_{i-1}+\frac{l_{WFi}}{L_i}M_i+l_{WFi}\sum_j\left(1-\frac{a_{i\cdot j}}{L_i}\right)W_{i\cdot j}$ (4) $M_{WAi}=\frac{L_i-l_{WAi}}{L_i}M_{i-1}+\frac{l_{WAi}}{L_i}M_i+(L_i-l_{WAi})\sum_j\frac{a_{i\cdot j}}{L_i}W_{i\cdot j}$	

Guidance for the survey and construction of steel ships Part D Annex D2.3.1, 1.2.2

Correction	Present	Note
The torsional stress at fillets due to twisting moments is to be obtained by the following formula: $\tau_f = \alpha_{KT} \frac{T}{Z_p}$ (5) where τ_f : Torsional stress in fillet at the root of webs α_{KT} : Stress concentration factor for torsion, as specified in **D2.3.1-5(1) of the Guidance** Z_p : Polar section modulus of crankpin or journal T : Twisting moment acting on crankpin or journal, which is to be determined by sequentially summing up the moments from the free end side. External forces to be considered are the same as the external forces for bending moments	The torsional stress at fillets due to twisting moments is to be obtained by the following formula: $\tau_f = \alpha_{KT} \frac{T}{Z_p}$ (5) where τ_f : Torsional stress in fillet at the root of webs α_{KT} : Stress concentration factor for torsion, as specified in **D2.3.1-5(1)** Z_p : Polar section modulus of crankpin or journal T : Twisting moment acting on crankpin or journal, which is to be determined by sequentially summing up the moments from the free end side. External forces to be considered are the same as the external forces for bending moments	Wording correction

Guidance for the survey and construction of steel ships Part GF GF5 GF5.8

Correction	Present	Note
In applying **5.8, Part GF of the Rules**, fuel preparation rooms are to be in accordance with the following **(1)** to -**(4**~~:~~**)**: (1) Fuel preparation rooms, regardless of location, are to be arranged to safely contain cryogenic leakages; (2) The material of the boundaries of the fuel preparation room is to have a design temperature corresponding with the lowest temperature it can be subjected to in a probable maximum leakage scenario unless the boundaries of the space, i.e., bulkheads and decks, are provided with suitable thermal protection; (3) The fuel preparation room is to be arranged to prevent surrounding hull structure from being exposed to unacceptable cooling, in case of leakage of cryogenic liquids; and (4) The fuel preparation room is to be designed to withstand the maximum pressure build up during such a leakage as specified in **(1)** to **(3)** above. Alternatively, pressure relief venting to a safe location (mast) can be provided.	In applying **5.8, Part GF of the Rules**, fuel preparation rooms are to be in accordance with the following **-1** to **-4**: **1** Fuel preparation rooms, regardless of location, are to be arranged to safely contain cryogenic leakages; **2** The material of the boundaries of the fuel preparation room is to have a design temperature corresponding with the lowest temperature it can be subjected to in a probable maximum leakage scenario unless the boundaries of the space, i.e., bulkheads and decks, are provided with suitable thermal protection; **3** The fuel preparation room is to be arranged to prevent surrounding hull structure from being exposed to unacceptable cooling, in case of leakage of cryogenic liquids; and **4** The fuel preparation room is to be designed to withstand the maximum pressure build up during such a leakage as specified in **-1** to **-3** above. Alternatively, pressure relief venting to a safe location (mast) can be provided.	Wording correction

Guidance for the survey and construction of steel ships Part GF GF6 Table GF6.4.15

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>Table GF6.4.15 Allowable Stresses for the Primary Equivalent Stress
<table>
<tr><th>Ferrite steels</th><th>Austenic steels</th><th>Aluminium alloys</th></tr>
<tr><td>0.79R_e</td><td>0.84R_e</td><td>0.79R_e</td></tr>
<tr><td>0.53R_m</td><td>0.42R_m</td><td>0.42R_m</td></tr>
</table>
Note:
For each member, the smaller of the above values is to be used with R_e and R_m as specified in **6.4.12-~~1(1)(c~~(1)(a)iii)**, Part GF of the Rules**.**</td>
<td>Table GF6.4.15 Allowable Stresses for the Primary Equivalent Stress
<table>
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</table>
Note:
For each member, the smaller of the above values is to be used with R_e and R_m as specified in **6.4.12-1(1)(c), Part GF of the Rules**.</td>
<td>Reference correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part GF GF6 GF6.8.1

Correction	Present	Note
The requirement on loading limits specified in **6.8.1~~.~~-2, Part GF of the Rules** is only applicable when a loading limit calculated using the formulae in **6.8.1~~.~~-1, Part GF of the Rules** gives a lower value than 95%.	The requirement on loading limits specified in **6.8.1.2, Part GF of the Rules** is only applicable when a loading limit calculated using the formulae in **6.8.1.1, Part GF of the Rules** gives a lower value than 95%.	Reference correction

Guidance for the survey and construction of steel ships Part GF Annex 1 Chapter 15 15.2.5-1

Correction	Present	Note
1 Performance is to be in accordance with the requirements in **14.2.5-1** to **-3**~~ of **14.2.5**~~ in replacing the terms “oxygen” and “oxygen concentration” therein by the terms “air (where the humidity is controlled)” and “humidity” respectively (hereinafter the same).	**1** Performance is to be in accordance with the requirements in **-1** to **-3** of **14.2.5** in replacing the terms “oxygen” and “oxygen concentration” therein by the terms “air (where the humidity is controlled)” and “humidity” respectively (hereinafter the same).	Wording correction

Guidance for the survey and construction of steel ships Part GF Annex 1 Chapter 21 21.5

Correction	Present	Note
Ships for which tests and inspections at the time of removable equipment installation on board were omitted in accordance with the requirements in the **21.5.3-3** or **-4**~~ of **21.5.3**~~ are to present records of removable equipment installation and operation to Society surveyors for verification purposes during periodical surveys. In this respect, Society surveyors may order the suspension of use of such removable equipment depending upon the present condition of the ship and the removable equipment, and the results of examinations of the aforementioned records.	Ships for which tests and inspections at the time of removable equipment installation on board were omitted in accordance with the requirements in the **-3** or **-4** of **21.5.3** are to present records of removable equipment installation and operation to Society surveyors for verification purposes during periodical surveys. In this respect, Society surveyors may order the suspension of use of such removable equipment depending upon the present condition of the ship and the removable equipment, and the results of examinations of the aforementioned records.	Wording correction

Guidance for the survey and construction of steel ships Part GF Annex 2A Chapter 1 1.3

Correction	Present	Note
The plans and documents to be submitted are as follows. (1) Plans and documents for approval (a) General arrangement (b) Items specified in **18.1.3(1)**, **(3**~~) and,~~**)**, **(5)** and **(6)**, **Part D of the Rules** (c) Operating instructions for the automatic control devices and remote control devices (including sequential control, combustion control and safety devices). (d) Diagrams for automatic combustion control devices of *GCU* (e) Gas fuel burning devices (f) Gas leak protection devices for connections between *GCU*s and gas fuel supply piping systems (g) Gas fuel supply piping systems (including details of valves and pipe fittings) and devices to protect surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for gas fuel supply systems (i) Prototype test plans for gas fuel burning devices and test results (j) Onboard test plans (k) Test plans of gas trials specified in **16.5.1, Part GF of the Rules** (l) Other drawings and data deemed necessary by the Society depending upon the type of *GCU* (2) Plans and documents for reference (a) Instruction manuals (including guidance for onboard maintenance, inspection and overhaul) (b) Other drawings and data deemed necessary by the Society	The plans and documents to be submitted are as follows. (1) Plans and documents for approval (a) General arrangement (b) Items specified in **18.1.3(1)**, **(3)** and, **(5)** and **(6)**, **Part D of the Rules** (c) Operating instructions for the automatic control devices and remote control devices (including sequential control, combustion control and safety devices). (d) Diagrams for automatic combustion control devices of *GCU* (e) Gas fuel burning devices (f) Gas leak protection devices for connections between *GCU*s and gas fuel supply piping systems (g) Gas fuel supply piping systems (including details of valves and pipe fittings) and devices to protect surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for gas fuel supply systems (i) Prototype test plans for gas fuel burning devices and test results (j) Onboard test plans (k) Test plans of gas trials specified in **16.5.1**, **Part GF of the Rules** (l) Other drawings and data deemed necessary by the Society depending upon the type of *GCU* (2) Plans and documents for reference (a) Instruction manuals (including guidance for onboard maintenance, inspection and overhaul) (b) Other drawings and data deemed necessary by the Society	Wording correction

Guidance for the survey and construction of steel ships Part K K1 K1.4.1-2

Correction	Present	Note
2 The wording "Where the quality of materials and the quality control system of manufacturer are deemed appropriate by the Society" in **1.4.1-5, Part K of the Rules**, means that the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers and Service Suppliers** or deemed equivalent thereto.	**2** The wording "Where the quality of materials and the quality control system of manufacturer are deemed appropriate by the Society" in **1.4.1-5**, **Part K of the Rules**, means that the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers** or deemed equivalent thereto.	Wording correction

Guidance for the survey and construction of steel ships Part K K1 K1.5.2-1

Correction	Present	Note
1 "It is deemed appropriate by the Society" specified in **1.5.2-1** and **1.5.2-3, Part K of the Rules**, means that the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers and Service Suppliers** or deemed equivalent thereto.	**1** "It is deemed appropriate by the Society" specified in **1.5.2-1** and **1.5.2-3**, **Part K of the Rules**, means that the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers** or deemed equivalent thereto.	Wording correction

Guidance for the survey and construction of steel ships Part K K1 K1.5.2-2

Correction	Present	Note
2 Where the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers and Service Suppliers**, the manufacturer is to enter the following statement to show that effect on the test certificate specified in **1.5.2-1, Part K of the Rules**. (Example) *This Certificate is issued by the manufacturer under the arrangement authorized by Nippon kaiji Kyokai in the approved quality system (Approval Number ..CLQA. ..) in accordance with Rules for Approval of Manufacturers.*	**2** Where the quality of materials and the quality control system of manufacturer are approved by the Society according to **Rules for Approval of Manufacturers**, the manufacturer is to enter the following statement to show that effect on the test certificate specified in **1.5.2-1**, **Part K of the Rules**. (Example) *This Certificate is issued by the manufacturer under the arrangement authorized by Nippon kaiji Kyokai in the approved quality system (Approval Number ..CLQA. ..) in accordance with Rules for Approval of Manufacturers.*	Wording correction

Guidance for the survey and construction of steel ships Part K K2 K2.2.2-2

Correction	Present	Note
2 In **2.2.2-2, Part K of the Rules**, corrections for elongation are to be in accordance with the following: (1) Aluminium alloy specified in **Part K of the Rules** are to be considered as Material Ⅰ in **Table K2.2, Part K of the Rules**. (2) Corrections for elongation may not be required in the case of copper alloy. (3) Where test specimens differing from those specified in **Table K2.1, Part K of the Rules** are used, the standard value of elongation are to be corrected according to the following formula : $n = E/F$ E : Elongation equivalent corresponding to standard to where the proportion specimens (L =5.65$\sqrt{A}$) specified in **Table K2.1, Part K of the Rules** are used n : Elongation where optional test specimens are used F : Coefficient of correction for elongation are shown in **Table K2.2.2-2**~~, Part K~~ below according to the gauge length (4) In case **(3)** above, the elongation (*n*) is to be recorded in the certificates of the material test. (5) Diagrams for conversion of elongation between the test specimens having gauge length *L*=200 *mm* or *L*=50 *mm* and the proportional specimens are as shown in **Fig. K2.2.2-1** and **Fig. K2.2.2-2**. However, in case the of Material III, the diagram for conversion of elongation is to be according to *ISO* 2566-2:1984.	**2** In **2.2.2-2, Part K of the Rules**, corrections for elongation are to be in accordance with the following: (1) Aluminium alloy specified in **Part K of the Rules** are to be considered as Material Ⅰ in **Table K2.2, Part K of the Rules**. (2) Corrections for elongation may not be required in the case of copper alloy. (3) Where test specimens differing from those specified in **Table K2.1, Part K of the Rules** are used, the standard value of elongation are to be corrected according to the following formula : $n = E/F$ E : Elongation equivalent corresponding to standard to where the proportion specimens (L =5.65$\sqrt{A}$) specified in **Table K2.1, Part K of the Rules** are used n : Elongation where optional test specimens are used F : Coefficient of correction for elongation are shown in **Table K2.2.2-2, Part K** below according to the gauge length (4) In case **(3)** above, the elongation (*n*) is to be recorded in the certificates of the material test. (5) Diagrams for conversion of elongation between the test specimens having gauge length *L*=200 *mm* or *L*=50 *mm* and the proportional specimens are as shown in **Fig. K2.2.2-1** and **Fig. K2.2.2-2**. However, in case the of Material III, the diagram for conversion of elongation is to be according to *ISO* 2566-2:1984.	Wording correction

Guidance for the survey and construction of steel ships Part K K3 K3.1.4

Correction	Present	Note
The kind and definition of heat treatment referred to in Remarks **(3)** in **Table K3.3, Part K of the Rules** are as follows: (Refer to ~~Fig~~**Figs. K3.1.4-1** and **K3.1.4-2**) (1) As Rolled (*AR*) involves steel being air cooled as it is rolled with no further heat treatment. The rolling and finishing temperature are typically in the austenite recrystallization region and above the normalizing temperature. (2) Normalizing (*N*) involves heating rolled steel above the critical temperature, *Ac*3, and in the lower end of the austenite recrystallization region for a specific period of time, followed by air cooling. (3) Quenching and Tempering (*QT*) involves heating rolled steel in the austenite recrystallization region for a specific period of time, followed by rapid cooling, and shortly thereafter involves heating rolled steel under the critical temperature, *Ac*1, followed by air cooling. The wording “direct quenching after rolling” in **Fig. K3.1.4-1** means that the quenching is rapidly carried out. (4) Controlled Rolling (*CR*) (Normalizing Rolling (*NR*)) is one of heat treatment methods in which heating temperature, rolling temperature and rolling reduction are controlled to fine steel structure and improve mechanical properties. The rollings are generally finished in low austenite temperature range between normalizing temperature and *Ar*3 transition temperature followed by air cooling. (5) Thermo-Mechanical Controlled Processing (*TMCP*) is a kind of heat treatment being based on the strict control of both the steel temperature and rolling reduction and is divided into the following two	The kind and definition of heat treatment referred to in Remarks **(3)** in **Table K3.3, Part K of the Rules** are as follows: (Refer to **Fig. K3.1.4-1** and **-2**) (1) As Rolled (*AR*) involves steel being air cooled as it is rolled with no further heat treatment. The rolling and finishing temperature are typically in the austenite recrystallization region and above the normalizing temperature. (2) Normalizing (*N*) involves heating rolled steel above the critical temperature, *Ac*3, and in the lower end of the austenite recrystallization region for a specific period of time, followed by air cooling. (3) Quenching and Tempering (*QT*) involves heating rolled steel in the austenite recrystallization region for a specific period of time, followed by rapid cooling, and shortly thereafter involves heating rolled steel under the critical temperature, *Ac*1, followed by air cooling. The wording “direct quenching after rolling” in **Fig. K3.1.4-1** means that the quenching is rapidly carried out. (4) Controlled Rolling (*CR*) (Normalizing Rolling (*NR*)) is one of heat treatment methods in which heating temperature, rolling temperature and rolling reduction are controlled to fine steel structure and improve mechanical properties. The rollings are generally finished in low austenite temperature range between normalizing temperature and *Ar*3 transition temperature followed by air cooling. (5) Thermo-Mechanical Controlled Processing (*TMCP*) is a kind of heat treatment being based on the strict control of both the steel temperature and rolling reduction and is divided into the following two	Wording correction

categories. (a) Thermo-Mechanical Rolling: *TMR* A kind of controlled rolling, generally a high proportion of rolling reduction is carried out close to or below the *Ar*3 transition temperature. The rolling towards the lower end of the austenite-ferrite intercritical duplex phase region may be included into *TMR*. (b) Accelerated Cooling Processing: *AcC* After completion of thermo-mechanical rolling, homogeneous cooling was made with adequate cooling speed faster than air cooling in the range of *Ar*3 transition temperature or below.	categories. (a) Thermo-Mechanical Rolling: *TMR* A kind of controlled rolling, generally a high proportion of rolling reduction is carried out close to or below the *Ar*3 transition temperature. The rolling towards the lower end of the austenite-ferrite intercritical duplex phase region may be included into *TMR*. (b) Accelerated Cooling Processing: *AcC* After completion of thermo-mechanical rolling, homogeneous cooling was made with adequate cooling speed faster than air cooling in the range of *Ar*3 transition temperature or below.	

Guidance for the survey and construction of steel ships Part K K5 K5.7.10

Correction	Present	Note
The wording "to be as deemed appropriate by the Society" in **7.2.11-3, Part K of the Rules** means to comply with the following. (1) The kinds of weldings are to be either *MIG* or *TIG* welding, and the position of welding is, in principle, to be flat. The welding consumables are, in principle, to be aluminium bronze or the common metals. (2) The welders are to have qualifications deemed appropriate by the Society. (3) The preheating and stress relieving heat treatment following the repair weldings are to be in accordance with the requirements given in ~~Table~~**Tables K7.2.11-1** and **K7.2.11-2**.The area to be heat treated is to be as large as possible. (4) Welding grooves are to be prepared in a manner that allows good fusion of the groove bottom. (5) The welding procedure qualification tests are to be carried out in the presence of a Surveyor as follows:	The wording "to be as deemed appropriate by the Society" in **7.2.11-3, Part K of the Rules** means to comply with the following. (1) The kinds of weldings are to be either *MIG* or *TIG* welding, and the position of welding is, in principle, to be flat. The welding consumables are, in principle, to be aluminium bronze or the common metals. (2) The welders are to have qualifications deemed appropriate by the Society. (3) The preheating and stress relieving heat treatment following the repair weldings are to be in accordance with the requirements given in **Table K7.2.11-1** and **K7.2.11-2**.The area to be heat treated is to be as large as possible. (4) Welding grooves are to be prepared in a manner that allows good fusion of the groove bottom. (5) The welding procedure qualification tests are to be carried out in the presence of a Surveyor as follows:	Wording correction

(a) Tests for butt welding i) Test sample The minimum dimensions of the test sample are to be as shown in **Fig. K7.2.11-1**. ii) Non-destructive inspection Test assemblies are to be examined by visual and liquid penetrant tests prior to the cutting of test specimens. The welded surface is to be regular and uniform and free from prejudicial defects such as cracks and undercuts. In cases where post-weld heat treatment is carried out, non-destructive inspections are to be performed after the heat treatment. Imperfections detected by liquid penetrant tests are to be assessed in accordance with **Annex K7.2.10** "GUIDANCE FOR THE PENETRANT TEST OF PROPELLER CASTINGS". iii) Macro-etching test Three test specimens are to be prepared and etched on one side to clearly reveal the weld metal, the fusion line and the *HAZ*. No pores greater than 3 *mm* and cracks in welded sections are to be permitted. iv) Tensile test The shapes and dimensions of the tensile test specimens are to be of kind *U2A* or *U2B* given in **Table ~~3~~M3.1, Part M of the Rules**. The number of tensile test specimens is to be two. The tensile strength is to be in compliance with **Table K7.2.11-3**. (b) Test of mold cavity welding i) Test piece The dimensions of the test piece are to be as	(a) Tests for butt welding i) Test sample The minimum dimensions of the test sample are to be as shown in **Fig.K7.2.11-1**. ii) Non-destructive inspection Test assemblies are to be examined by visual and liquid penetrant tests prior to the cutting of test specimens. The welded surface is to be regular and uniform and free from prejudicial defects such as cracks and undercuts. In cases where post-weld heat treatment is carried out, non-destructive inspections are to be performed after the heat treatment. Imperfections detected by liquid penetrant tests are to be assessed in accordance with **Annex K7.2.10** "GUIDANCE FOR THE PENETRANT TEST OF PROPELLER CASTINGS". iii) Macro-etching test Three test specimens are to be prepared and etched on one side to clearly reveal the weld metal, the fusion line and the *HAZ*. No pores greater than 3 *mm* and cracks in welded sections are to be permitted. iv) Tensile test The shapes and dimensions of the tensile test specimens are to be of kind *U2A* or *U2B* given in **Table 3.1, Part M of the Rules**. The number of tensile test specimens is to be two. The tensile strength is to be in compliance with **Table K7.2.11-3**. (b) Test of mold cavity welding i) Test piece The dimensions of the test piece are to be as	

shown in **Fig._K7.2.11-2**.	shown in **Fig.K7.2.11-2**.	
ii) Macrostructure test Macrostructure tests are to confirm that no any defects such as crack exist in the cross sections of weld parts.	ii) Macrostructure test Macrostructure tests are to confirm that no any defects such as crack exist in the cross sections of weld parts.	
iii) Microstructure test Microstructure tests are to confirm that the microstructures of the deposit metal, base metal and heat-affected zones are in satisfactory condition.	iii) Microstructure test Microstructure tests are to confirm that the microstructures of the deposit metal, base metal and heat-affected zones are in satisfactory condition.	
iv) Hardness test Hardness tests are to confirm that there is no unacceptable fluctuation in hardness between the deposit metal, base metal and heat-affected zones.	iv) Hardness test Hardness tests are to confirm that there is no unacceptable fluctuation in hardness between the deposit metal, base metal and heat-affected zones.	
(6) Where the tests specified in the preceding **(5)** fail, retests are to be in accordance with **4.2.12, Part M of the Rules**.	(6) Where the tests specified in the preceding **(5)** fail, retests are to be in accordance with **4.2.12**, **Part M of the Rules**.	
(7) The scope of approval of the welding procedures and related specifications of propeller castings are to be in accordance with the following **(a)** through **(h)**, on the condition that the other welding conditions are same.	(7) The scope of approval of the welding procedures and related specifications of propeller castings are to be in accordance with the following **(a)** through **(h)**, on the condition that the other welding conditions are same.	
(a) Base metal Range of approval for propeller castings is limited to be in accordance with **Table K7.2.11-4**.	(a) Base metal Range of approval for propeller castings is limited to be in accordance with **Table K7.2.11-4**.	
(b) Thickness Range of thickness is to be in accordance with **Table K7.2.11-5**.	(b) Thickness Range of thickness is to be in accordance with **Table K7.2.11-5**.	
(c) Welding position Approval for a test made in any position is restricted to that position.	(c) Welding position Approval for a test made in any position is restricted to that position.	
(d) Welding process Approval is only valid for the welding process	(d) Welding process Approval is only valid for the welding process	

used in the welding procedure test. Single run is not qualified by a multi-run butt weld test. (e) Filler metal Approval is only valid for the filler metal used in the welding procedure test. (f) Heat input The upper limit of heat input approved is 25 % greater than that used in welding the test piece. The lower limit of heat input approved is 25 % lower than that used in welding the test piece. (g) Preheating and interpass temperature The minimum preheating temperature is not to be less than that used in the qualification test. The maximum interpass temperature is not to be higher than that used in the qualification test. (h) Post-weld heat treatment Heat treatment used in the qualification test is to be maintained during actual work. Holding time may be adjusted as a function of thickness.	used in the welding procedure test. Single run is not qualified by a multi-run butt weld test. (e) Filler metal Approval is only valid for the filler metal used in the welding procedure test. (f) Heat input The upper limit of heat input approved is 25 % greater than that used in welding the test piece. The lower limit of heat input approved is 25 % lower than that used in welding the test piece. (g) Preheating and interpass temperature The minimum preheating temperature is not to be less than that used in the qualification test. The maximum interpass temperature is not to be higher than that used in the qualification test. (h) Post-weld heat treatment Heat treatment used in the qualification test is to be maintained during actual work. Holding time may be adjusted as a function of thickness.	

Guidance for the survey and construction of steel ships Part L L1 L1.4.1-2

Correction	Present	Note
2 The wording "deemed appropriate by the Society" in **1.4.1-4**, **Part L of the Rules**, means that the quality of equipment and the quality control system of manufacturer are approved by the Society according to "**Rules for Approval of Manufacturers and Service Suppliers**" or deemed equivalent thereto.	**2** The wording "deemed appropriate by the Society" in **1.4.1-4**, **Part L of the Rules**, means that the quality of equipment and the quality control system of manufacturer are approved by the Society according to "**Rules for Approval of Manufacturers**" or deemed equivalent thereto.	Wording correction

Guidance for the survey and construction of steel ships Part L L2 L2.1.9-1

Correction	Present	Note
1 "Additional non-destructive test" specified in **2.1.9-43Part L** of the Rules means the followings: (1) Ultrasonic testing in random area of castings (for example, root of arm, shank, head pin, etc.) (2) Non-destructive test in **2.1.11-3**, **Part L** of Rules, even in case of components for cast used excluding super high holding power anchors	**1** "Additional non-destructive test" specified in **2.1.9-4**, **Part L** of the Rules means the followings: (1) Ultrasonic testing in random area of castings (for example, root of arm, shank, head pin, etc.) (2) Non-destructive test in **2.1.11-3**, **Part L** of Rules, even in case of components for cast used excluding super high holding power anchors	Reference correction

Guidance for the survey and construction of steel ships Part L L2 L2.1.9-2

Correction	Present	Note
2 "Mechanical test" specified in **2.1.9-43Part L** of the Rules is to be conducted in accordance with the requirement of **2.1.3-2, Part L of the Rules**.	**2** "Mechanical test" specified in **2.1.9-4**, **Part L** of the Rules is to be conducted in accordance with the requirement of **2.1.3-2**.	Reference correction

Guidance for the survey and construction of steel ships Part L L2 L2.2.8-1

Correction	Present	Note
1 The "additional non-destructive tests" specified in **2.2.8-43, Part L of the Rules** means the following: (1) Ultrasonic testing in random areas of the casting selected by the attending surveyor. For example, the roots of arms, shanks, head pins, etc. (2) The non-destructive tests specified in **2.2.10-1(2), Part L of the Rules**.	**1** The "additional non-destructive tests" specified in **2.2.8-4, Part L of the Rules** means the following: (1) Ultrasonic testing in random areas of the casting selected by the attending surveyor. For example, the roots of arms, shanks, head pins, etc. (2) The non-destructive tests specified in **2.2.10-1(2), Part L of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part L L2 L2.2.8-2

Correction	Present	Note
2 The "impact tests deemed appropriate by the Society" specified in **2.2.8-43, Part L of the Rules** means test conducted in accordance, mutatis mutandis, with the requirements of **2.2.3-2, Part L of the Rules**.	**2** The "impact tests deemed appropriate by the Society" specified in **2.2.8-4, Part L of the Rules** means test conducted in accordance, mutatis mutandis, with the requirements of **2.2.3-2, Part L of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part L L2 L2.2.11-1

Correction	Present	Note
1 "Holding power tests designated by the Society" refers to the tests specified in **1.6.1(3), Part 2 of the "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**. For anchors intended to be used for vessels and floating offshore facilities fixed or positioned at specific sea areas for long periods of time, it means the tests specified in **~~1A2~~1A.2.2(3)(b), Part 2 of the "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**.	**1** "Holding power tests designated by the Society" refers to the tests specified in **1.6.1(3), Part 2 of the "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**. For anchors intended to be used for vessels and floating offshore facilities fixed or positioned at specific sea areas for long periods of time, it means the tests specified in **1A2.2(3)(b), Part 2 of the "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**.	Wording correction

Guidance for the survey and construction of steel ships Part L L3 L3.2.5-2

Correction	Present	Note
2 The wording "where specially approved by the Society" specified in **3.2.5-7, Part ~~K~~L of the Rules**, means that it is verified that any part of common links which are connected with connecting common link under the proposed connecting method has not been adversely affected and that such connecting method is approved by the Society and the purchaser.	**2** The wording "where specially approved by the Society" specified in **3.2.5-7, Part K of the Rules**, means that it is verified that any part of common links which are connected with connecting common link under the proposed connecting method has not been adversely affected and that such connecting method is approved by the Society and the purchaser.	Reference correction

Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-2

Correction	Present	Note
		Reference correction

Table M2.1.1-2 Application of Welding Consumables (Aluminium Alloys)

Kind and grade of aluminium alloy to be welded		Grade of applicable welding consumables (1)
5000 series	5754*P*	*RA/WA*, *RB/WB*, *RC/WC*
	5086*P*, 5086*S*	*RB/WB*, *RC/WC*
	5083*P*, 5083*S*	*RC/WC*
	5383*P*, 5383*S*	*RC/WC*
	5059*P*, 5059*S*	*RC/WC*
	5456*P*	*RC/WC*
6000 series	6005*AS*	*RD/WD*
	6061*P*, 6061*S*	*RD/WD*
	6082*S*	*RD/WD*

Note:

(1) The symbols used for the welding consumables in this Table are the last two characters used for the same materials shown in **Table M6.51~~.~~, Part M of the Rules**.

Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-3

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">
Table M2.1.1-3　Application of Welding Consumables
(Steel tubes for boiler and heat exchangers, steel pipes for pressure piping,
headers and steel pipes for low temperature service)
<table>
<tr><th>Kind of base pipe (or tube)</th><th>Grade of base pipe (or tube)</th><th>Grade of applicable welding consumables (1)</th></tr>
<tr><td rowspan="3">Steel tubes for boilers and heat exchangers,
steel pipes for pressure piping, headers</td><td>*KSTB*33, *KSTB*35, *KSTPG*38, *KSTS*38, *KSTPT*38</td><td>1, 2, 3, 51, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, *L*1, *L*2, *L*3</td></tr>
<tr><td>*KSTB*42, *KSTPG*42, *KSTS*42, *KSTPT*42, *KBH*-1</td><td>51, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, *L*2, *L*3, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42</td></tr>
<tr><td>*KSTS*49, *KSTPT*49, *KBH*-2</td><td>51, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, *L*3, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42</td></tr>
<tr><td rowspan="3">Steel pipes for low temperature service</td><td>*KLPA*</td><td>*L*1, *L*2, *L*3, 54, 54*Y*40, 55*Y*40</td></tr>
<tr><td>*KLPB*, *KLPC*</td><td>*L*2, *L*3</td></tr>
<tr><td>*KLP*9</td><td>*L*91, *L*92</td></tr>
</table>
Note:
(1)　The symbols for the welding consumables listed above indicate materials which are specified in **Table M6.1**, **Table M6.12**, **Table M6.21**, **Table M6.29** or **Table M6.58, Part M of the Rules** that have the same mark at the end. (For example, “3” indicates *KMW*3, *KAW*3, *KSW*3 and *KEW*3; “*L*3” indicates *KMWL3*, *KAWL*3 and *KSWL3*; and “3*Y*42” indicates *KMW*3*Y*42, *KAW*3*Y*42 and *KSW*3*Y*42.)
</td><td>Reference correction</td></tr>
</table>

Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-4

Correction	Present	Note
		Reference correction

Table M2.1.1-4 Application of Welding Consumables
(Rolled steels for boilers and pressure vessels)

Kind of base plate	Grade of base plate	Grade of applicable welding consumables (1)
Rolled steel for boilers	*KP*42	51, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, *L*2, *L*3, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42
	*KP*46, *KPA*46, *KP*49, *KPA*49	51, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, *L*3, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42
Rolled steel for pressure vessels	*KPV*24(2)	2, 3, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42
	*KPV*32(3)	52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42
	*KPV*36	63*Y*47, 2*Y*42, 3*Y*42, 4*Y*42, 5*Y*42, 2*Y*46, 3*Y*46, 4*Y*46, 5*Y*46, 3*Y*50, 4*Y*50, 5*Y*50
	*KPV*42, *KPV*46	63*Y*47, 3*Y*50, 4*Y*50, 5*Y*50, 3*Y*55, 4*Y*55, 5*Y*55
	*KPV*50	3*Y*55, 4*Y*55, 5*Y*55, 3*Y*62, 4*Y*62, 5*Y*62

Notes:

(1) The symbols for the welding consumables listed above indicate materials which are specified in **Table M6.1**, **Table M6.12**, **Table M6.21**, **Table M6.29** or **Table M6.58, Part M of the Rules** that have the same mark at the end. (For example, "3" indicates *KMW*3, *KAW*3, *KSW*3 and *KEW*3; "*L*3" indicates *KMWL3*, *KAWL*3 and *KSWL3*; and "3*Y4*2" indicates *KMW*3*Y*42, *KAW*3*Y*42 and *KSW*3*Y*42.)

(2) The symbols for the welding consumables listed above as "2, 3, 52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40" are applicable only for *KMW* and *KSW.*

(3) The symbols for the welding consumables listed above as "52, 53, 54, 52*Y*40, 53*Y*40, 54*Y*40, 55*Y*40" are applicable only for *KMW* and *KSW.*

Guidance for the survey and construction of steel ships Part M M2 M2.2.1-1

Correction	Present	Note
1 In **2.2.1(2)**, **Part M of the Rules**, for steels considered to have the brittle crack arrest properties specified in **3.12**, **Part K of the Rules**, the welding procedures and related specifications approved for the steels excluding "*BCA*6000" or "*BCA*8000" given in **Table K3.40** or **Table K3.41, Part K of the Rules,** may be applied except for the large heat input welding specified in Note (~~5~~6) of **Table M4.2, Part M of the Rules**.	**1** In **2.2.1(2)**, **Part M of the Rules**, for steels considered to have the brittle crack arrest properties specified in **3.12**, **Part K of the Rules**, the welding procedures and related specifications approved for the steels excluding "*BCA*6000" or "*BCA*8000" given in **Table K3.40** or **Table K3.41, Part K of the Rules,** may be applied except for the large heat input welding specified in **Note (5)** of **Table M4.2, Part M of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part M M2 M2.2.2-1

Correction	Present	Note
1 For **2.2.2-2(2)**, **Part M of the Rules**, suffixes added to the grades specified in **Table K3.40** or **Table K3.41, Part K of the Rules** (e.g. "-*BCA*6000") need not be included except for the large heat input welding specified in Note (~~5~~6) of **Table M4.2, Part M of the Rules**.	**1** For **2.2.2-2(2)**, **Part M of the Rules**, suffixes added to the grades specified in **Table K3.40** or **Table K3.41, Part K of the Rules** (e.g. "-*BCA*6000") need not be included except for the large heat input welding specified in **Note (5)** of **Table M4.2, Part M of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part M M2 Table M2.4.3-1

Correction	Present	Note
Table M2.4.3-1 Control Standards for the Processing and Welding of Rolled Steels for Hulls and Rolled Steels for Low Temperature Service		Reference correction

Items for control standard		Mild steel		High tensile steels(1)							Rolled steels for low temperature service(13)		
				Conventional type(2)			*TMCP* type						
		Grade	Control standard	Grade	Control standard		Grade	Carbon equivalent for steel C_{eq}(3)(4)(5)	Control standard		Carbon equivalent for steel C_{eq}(3)(4)(5)	Control standard	
Length of short bead (6)	Tack and repair weld of scar	*KE*	30 *mm* or over	*KA*32 *KD*32 *KE*32	50 *mm* or over(12)		*KA*32 *KD*32 *KE*32	0.36% or below(7)	10 *mm* or over(8)		More than 0.36%	50 *mm* or over	
											0.36% or below	10 *mm* or over	
	Repairing of welded bead			*KA*36 *KD*36 *KE*36			*KA*36 *KD*36 *KE*36		30 *mm* or over		More than 0.36%	50 *mm* or over	
											0.36% or below	30 *mm* or over	
Preheating in working	Temperature need preheating (9)	*KA* *KB* *KD* *KE*	-5°C or below	*KA*32 *KD*32 *KE*32 *KA*36	5°C or below(10)(12)		*KA*32 *KD*32 *KE*32 *KA*36	0.36% or below(7)	0°C or below (10)		More than 0.36%	5°C or below	
											0.36% or below	0°C or below	
	Preheating temperature		20°C or over	*KD*36 *KE*36	50°C or over		*KD*36 *KE*36		20°C or over		More than 0.36%	50°C or over	
											0.36% or below	20°C or over	
Line heating (Thermal fairing)	Maximum heating temperature of steel Surface	*KA* *KB* *KD* *KE*	(11)	*KA*32 *KD*32 *KE*32 *KA*36	Water cooling just after heating	650°C or below	*KA*32 *KD*32 *KA*36 *KD*36	0.38% or below	Water cooling just after heating	1000°C or below	—	Air cooling after heating	900°C or below
				*KD*36 *KE*36	Air cooling after heating	900°C or below			Air cooling after heating				

					Air cooling and subsequent water cooling after heating	900°C or below (Starting temperature of water cooling is to be 500°C or below)	*KE*32 *KE*36	0.38% or below	Water cooling just after heating	900°C or below	More than 0.36%	Air cooling and subsequent water cooling after heating	900°C or below (Starting temperature of water cooling is to be 500°C or below)
									Air cooling after heating		0.36% or below		900°C or below (Starting temperature of water cooling is to be 550°C or below)

Notes:

(1) In *KA*40, *KD*40, *KE*40 and *KE*47, the control standards for the conventional high tensile steels are applied except for the case specially approved by the Society. *KF*32, *KF*36 and *KF*40 are to be as deemed to appropriate by the Society.

(2) The conventional type is the high tensile steel of which grades of heat treatment specified in Notes (3) of **Table K3.3, Part K of the Rules,** as other than the *TMCP* type.

(3) C_{eq} is to be calculated by the following formula and is to be rounded to two decimal places.

$$C_{eq} = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15} \ (\%)$$

(4) The control standards when the value of C_{eq} exceeds the value in this Table, in principle, are to be applied as conventional type.

(5) When there are differences in C_{eq} of the steel materials, the control standard corresponding to the higher value of C_{eq} is to be applied.

(6) The length of bead is to be measured from the starting point of weld to the centre of the crater at the termination of the weld.

(7) Where cold cracking susceptibility P_{cm} is substituted for C_{eq}, the control standards are to be as deemed to appropriate by the Society. P_{cm} is to be calculated by the following formula and is to be rounded to two decimal places.

$$P_{cm} = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B \ (\%)$$

(8) It is recommended that for *KE*32 and *KE*36 to be not less than 30 *mm*.

(9) Even in cases where the temperature exceeds the value given in this Table, preheating may be required depending on the thickness of steel materials, degree of restrain and welding heat input.

(10) Electrodes are to be of the low hydrogen electrodes. However, in horizontal butt welding, overhead fillet welding, etc., extremely low hydrogen electrodes (the quantity of hydrogen measured by the glycerine replacement method is not more than 0.03 cm^3/g) is to be used, or in cases the temperature exceeds the value in this Table. Preheating is to be carried out.

(11) It is recommended that the conventional control standards for the conventional high tensile steels are applied to *KE*.

(12) For *KE*47, in the cases where P_{cm} is less than or equal to 0.19, 25 *mm* of short bead length and air temperature of 0°C or below may be adopted where

approved by the Society. (13) These control standards apply to *KL*24*A*, *KL*24*B*, *KL*27, *KL*33 and *KL*37. The standards for other grades are to be as deemed appropriate by the Society. (14) For steels considered to have brittle crack arrest properties specified in **3.12, Part K of the Rules**, the control standards for the steels excluding “*BCA*6000” or “*BCA*8000” given in **Table K3.40** or **Table K3.41, Part K of the Rules**, are to be applied.	

Guidance for the survey and construction of steel ships Part M M4 M4.1.4-1

Correction	Present	Note
1 Application of provisory requirement specified in **4.1.4-1**, **Part M** of the Rules is to be applied to **4.1.4-1(4)(c), Part M of the Rules** and to be in accordance with **Table 4M4.1.4-1**. In this case, test records which the Surveyor deems appropriate are to be submitted to the Surveyor.	**1** Application of provisory requirement specified in **4.1.4-1**, **Part M** of the Rules is to be applied to **4.1.4-1(4)(c), Part M of the Rules** and to be in accordance with **Table 4.1.4-1**. In this case, test records which the Surveyor deems appropriate are to be submitted to the Surveyor.	Reference correction

Guidance for the survey and construction of steel ships Part M M4 M4.1.4-2

Correction	Present	Note
2 With respect to the provisions of **4.1.4-1(1)** and **-2(1), Part M of the Rules**, fillet weld joints, T-joints with full penetration and T-joints with partial penetration welding positions included in the approval of butt welding are to be in accordance with the following. (1) For plates, **Table M4.1.4-2** of this guidance and **Table M5.10, Part M of the Rules** (2) For pipes, **Table M4.1.4-3** of this guidance and **Table M5.11, Part M of the Rules**	**2** With respect to the provisions of **4.1.4-1(1)** and **-2(1), Part M of the Rules**, fillet weld joints, T-joints with full penetration and T-joints with partial penetration welding positions included in the approval of butt welding are to be in accordance with the following. (1) For plates, **Table M4.1.4-2** and **Table M5.10, Part M of the Rules** (2) For pipes, **Table M4.1.4-3** and **Table M5.11, Part M of the Rules**	Reference correction

Guidance for the survey and construction of steel ships Part M M4 M4.1.4-4

Correction	Present	Note
4 The wording “deemed appropriate by the Society” specified in **4.1.4-3, Part M of the Rules** means the following **(1)** to **(3)**. (1) Heat input Heat input of welding for actual works is to be complied with the requirements specified in the following **(a)** and **(b)**. (a) The upper limit of heat input approved is 1.25 times the heat input used in welding the test piece, but not over 55 *kJ/cm*. However, for high heat input processes specified in Note (6) of **Table 4M4.2 ~~Notes(5),~~, Part M of the Rules**, the upper limit is 1.1 time the heat input used in welding the test piece. (b) The lower limit of heat input approved is 0.75 times the heat input used in welding the test piece. (2) Preheating and interpass temperature Preheating and interpass temperature for actual work are to be complied with the requirements specified in the following **(a)** and **(b)**. (a) The minimum preheating temperature is that used in the qualification test. (b) The maximum interpass temperature is that used in the qualification test. (3) Post-weld heat treatment The heat treatment used in the qualification test is to be maintained during actual work. Holding time may be adjusted as a function of thickness.	**4** The wording “deemed appropriate by the Society” specified in **4.1.4-3, Part M of the Rules** means the following **(1)** to **(3)**. (1) Heat input Heat input of welding for actual works is to be complied with the requirements specified in the following **(a)** and **(b)**. (a) The upper limit of heat input approved is 1.25 times the heat input used in welding the test piece, but not over 55 *kJ/cm*. However, for high heat input processes specified in **Table 4.2 Notes(5)**, **Part M of the Rules**, the upper limit is 1.1 time the heat input used in welding the test piece. (b) The lower limit of heat input approved is 0.75 times the heat input used in welding the test piece. (2) Preheating and interpass temperature Preheating and interpass temperature for actual work are to be complied with the requirements specified in the following **(a)** and **(b)**. (a) The minimum preheating temperature is that used in the qualification test. (b) The maximum interpass temperature is that used in the qualification test. (3) Post-weld heat treatment The heat treatment used in the qualification test is to be maintained during actual work. Holding time may be adjusted as a function of thickness.	Reference correction

Guidance for the survey and construction of steel ships Part M M4 Table M4.1.4-7

<table>
<tr><th colspan="2">Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="3">
Table M4.1.4-7 Kind of Aluminium Alloys
<table>
<tr><th colspan="3">Grade of test assembly</th><th>Material classification</th><th>Range of approval$^{(2), (3)}$</th></tr>
<tr><td rowspan="3">Aluminium alloys$^{(1)}$</td><td rowspan="2">5000 series</td><td>5754<i>P</i></td><td>A</td><td>(A+A)</td></tr>
<tr><td>5086<i>P</i>, 5086<i>S</i>,
5083<i>P</i>, 5083<i>S</i>,
5383<i>P</i>, 5383<i>S</i>,
5059<i>P</i>, 5059<i>S</i>,
5456<i>P</i></td><td>B</td><td>(A+A), (B+B), (A+B)</td></tr>
<tr><td>6000 series</td><td>6005<i>AS</i>
6061<i>P</i>, 6061<i>S</i>
6082<i>S</i></td><td>C</td><td>(C+C)</td></tr>
</table>
Notes:
(1) All temper conditions indicated with grades are to be included (See Table K8.3(a), Table K8.3(b), Part K of the Rules).
(2) Combination of the same material’s classification includes welded joints of different grade of aluminium alloys within the same material’s classification. Combination of the different material’s classification includes welded joints of different grade of aluminium alloys within each material’s classification.
(3) The qualification of one alloy also qualifies the procedures for other alloys of the same material classification which have an equal or lower specified tensile strength after welding.
</td><td>Reference correction</td></tr>
</table>

Guidance for the survey and construction of steel ships Part M M4 M4.2.7-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td>1 With respect to <s>Table4.9 </s>Notes (1<s>),</s>) of Table M4.9, Part M of the Rules, the wording “impact test requirements deemed appropriate by the Society” refers to the following.
(1) Where the thickness of test assemblies is more than 50 <i>mm</i> and not exceeding 70 <i>mm</i>, values in Table M4.2.7-1.
(2) Where the thickness of test assemblies is exceeding 70 <i>mm</i>, values deemed appropriate by the Society.</td><td>1 With respect to Table4.9 Notes (1), Part M of the Rules, the wording “impact test requirements deemed appropriate by the Society” refers to the following.
(1) Where the thickness of test assemblies is more than 50 <i>mm</i> and not exceeding 70 <i>mm</i>, values in Table M4.2.7-1.
(2) Where the thickness of test assemblies is exceeding 70 <i>mm</i>, values deemed appropriate by the Society.</td><td>Reference correction</td></tr>
</table>

Guidance for the survey and construction of steel ships Part M M4 Table M4.3.1-2

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td>Table M4.3.1-2　Acceptance Criteria
<table>
<tr><td>Surface cracks</td><td>Liquid penetrant tests or magnetic particle tests are to be carried out for the whole length of the bead in 48 *hours* after completion of welding, where by it is to be verified that there are no surface cracks. However, cracks are not to be regarded as surface cracks.</td></tr>
<tr><td>Sectional cracks</td><td>For the three sectional faces of welds excluding craters, root cracks and toe cracks are to be inspected with a magnifying glass (magnifying ratio of 5 to 10 *times*), and it to be verified that there are no sectional cracks. However, those with a length of less than 0.5 *mm* may be ignored.</td></tr>
<tr><td>Hardness test</td><td>Hardness distribution at positions specified in **Fig. M4.~~3.1-2~~7, Part M of the Rules** in addition to those specified in **6.2.13, Part M of the Rules** is to be measured. However, the measured hardness values are to be for reference only.</td></tr>
</table>
</td>
<td>Table M4.3.1-2　Acceptance Criteria
<table>
<tr><td>Surface cracks</td><td>Liquid penetrant tests or magnetic particle tests are to be carried out for the whole length of the bead in 48 *hours* after completion of welding, where by it is to be verified that there are no surface cracks. However, cracks are not to be regarded as surface cracks.</td></tr>
<tr><td>Sectional cracks</td><td>For the three sectional faces of welds excluding craters, root cracks and toe cracks are to be inspected with a magnifying glass (magnifying ratio of 5 to 10 *times*), and it to be verified that there are no sectional cracks. However, those with a length of less than 0.5 *mm* may be ignored.</td></tr>
<tr><td>Hardness test</td><td>Hardness distribution at positions specified in **Fig. M4.3.1-2** in addition to those specified in **6.2.13, Part M of the Rules** is to be measured. However, the measured hardness values are to be for reference only.</td></tr>
</table>
</td>
<td>Reference correction</td>
</tr>
</table>

Guidance for the survey and construction of steel ships Part M M6 M6.1.3-2

Correction	Present	Note
2 The treatment of **6.1.3-8, Part M of the Rules** is to be in accordance with **Table M6.1.3-1 of this guidance** and **Table M5.10, Part M of the Rules**.	**2** The treatment of **6.1.3-8, Part M of the Rules** is to be in accordance with **Table M6.1.3-1** and **Table M5.10**.	Reference correction

Guidance for the survey and construction of steel ships Part M M8 M8.4.2-2

Correction	Present	Note
2 Where ultrasonic tests are accepted instead of radiographic tests according to the requirements of **8.1.2-5, Part M of the Rules,** the location of inspection of ultrasonic testing are to comply with the following requirements; (1) For strength deck, side shell plating, bottom shell plating and hatch side coaming (including the top plate), although the number of inspections are to be not more than the half number of inspections specified in **Table M8.1.1-1**, the locations of inspection are to be approved by the Surveyor. However, the intersections of butt welds are to be excluded. (2) For structural members except for strength deck, side shell plating and bottom shell plating, the locations of inspection may be all the locations specified in **Table M8.1.1-1**. However, the intersections of the weld lines of plate members are to be excluded.	**2** Where ultrasonic tests are accepted instead of radiographic tests according to the requirements of **8.1.2-5**, the location of inspection of ultrasonic testing are to comply with the following requirements; (1) For strength deck, side shell plating, bottom shell plating and hatch side coaming (including the top plate), although the number of inspections are to be not more than the half number of inspections specified in **Table M8.1.1-1**, the locations of inspection are to be approved by the Surveyor. However, the intersections of butt welds are to be excluded. (2) For structural members except for strength deck, side shell plating and bottom shell plating, the locations of inspection may be all the locations specified in **Table M8.1.1-1**. However, the intersections of the weld lines of plate members are to be excluded.	Reference correction

Guidance for the survey and construction of steel ships Part N N5 N5.9.3-1

Correction	Present	Note
1 For the purpose of **5.9.3, Part N of the Rules,** the radiographic testing method and the judgement for acceptance are to conform to the requirements in **D11.6.5-2** and **-3**~~ **of D11.6.5**~~.	**1** For the purpose of **5.9.3, Part N of the Rules,** the radiographic testing method and the judgement for acceptance are to conform to the requirements in **-2** and **-3 of D11.6.5.**	Wording correction

Guidance for the survey and construction of steel ships Part N N5 N5.9.3-3

Correction	Present	Note
3 The "other non-destructive tests" referred to in **5.9.3(3), Part N of the Rules** means, depending upon the use of the pipe, magnetic particle testing or liquid penetrant testing, and the testing procedures are to conform to the requirements in **D11.4.6-3** and **-4**~~ of **D11.4.6**~~.	**3** The "other non-destructive tests" referred to in **5.9.3(3), Part N of the Rules** means, depending upon the use of the pipe, magnetic particle testing or liquid penetrant testing, and the testing procedures are to conform to the requirements in **-3** and **-4** of **D11.4.6**.	Wording correction

Guidance for the survey and construction of steel ships Part N N5 N5.11.5-1

Correction	Present	Note
1 For the purpose of **5.11.5, Part N of the Rules**, the calculation conditions and allowable stress in the stress analysis are to be standardized in accordance with the following requirements **(1)** to **(5)**: (1) As the temperature condition, a state uniformly cooled down to the design temperature is to be considered. As the reference temperature (thermal stress = 0), 15°C is to be regarded as standard. (2) Loading conditions are to be in accordance with the following requirements **(a)** to **(d)**: (a) As the internal pressure, the design pressure specified in the requirements in **5.~~2~~4.~~4~~2, Part N of the Rules** is to be considered. (b) The self-weight of pipelines, when it cannot be neglected, is to be considered including its acceleration. (c) As the forced displacement, the forced strains corresponding to the allowable sagging moment and hogging moment for the hull are to be considered. (d) As the thermal load, one which can be determined according to the condition indicated in the **(1)** above is to be considered. (3) Support conditions are to be as deemed appropriate by the Society depending upon the construction, arrangement and the materials used for pipe supports. (4) Allowable stresses are to be as deemed appropriate by the Society depending upon the calculation method and materials used for pipelines. (5) Insulation materials are to be considered to give no contribution at all to the strength of the pipeline.	**1** For the purpose of **5.11.5, Part N of the Rules**, the calculation conditions and allowable stress in the stress analysis are to be standardized in accordance with the following requirements **(1)** to **(5)**: (1) As the temperature condition, a state uniformly cooled down to the design temperature is to be considered. As the reference temperature (thermal stress = 0), 15°C is to be regarded as standard. (2) Loading conditions are to be in accordance with the following requirements **(a)** to **(d)**: (a) As the internal pressure, the design pressure specified in the requirements in **5.2.4, Part N of the Rules** is to be considered. (b) The self-weight of pipelines, when it cannot be neglected, is to be considered including its acceleration. (c) As the forced displacement, the forced strains corresponding to the allowable sagging moment and hogging moment for the hull are to be considered. (d) As the thermal load, one which can be determined according to the condition indicated in the **(1)** above is to be considered. (3) Support conditions are to be as deemed appropriate by the Society depending upon the construction, arrangement and the materials used for pipe supports. (4) Allowable stresses are to be as deemed appropriate by the Society depending upon the calculation method and materials used for pipelines. (5) Insulation materials are to be considered to give no contribution at all to the strength of the pipeline.	Reference correction

Guidance for the survey and construction of steel ships Part N N5 N5.12.1-1

Correction	Present	Note
1 For the purpose of **5.12.1, Part N of the Rules**, the materials used for piping, valves and fittings are to comply with the relevant requirements in **Chapter 6, Part N of the Rules**, and at the same time, to conform to the relevant requirements in **Part K of the Rules**. However, for materials used for the piping specified in the following **(1)** to **(5)**, those conforming to *JIS* or other standards deemed appropriate by the Society may be used where they comply with the requirements in **Chapter 6, Part N of the Rules**. (1) Pipes, valves and pipe fittings used for cargo piping and process piping with design pressures not exceeding 1 *MPa* and design temperatures of 0°C or more. (2) Valves and pipe fittings used for cargo piping and process piping with design pressures not exceeding 3 *MPa* and design temperatures of 0°C or more as well as nominal diameters less than 100 *A*. (3) Pipes, valves and pipe fittings used for accessory piping or instrumentation piping with diameters not exceeding 25 *mm* irrespective of design pressure and design temperature. (4) Open-ended pipes provided inside and outside cargo tanks, excluding membrane and semi-membrane tanks, with design temperatures of -55°C or higher. (5) Pipe joints of a butt welded type and pipe joints of a slip-on sleeve welded type (such as elbows, reducers, tees, bends and sockets, etc.) for which hot forming or heat treatment is carried out during their manufacturing process in accordance with the requirements in **D12.6.1(1)(a)ii), Part D of the ~~Rules~~Guidance** on the condition that they receive approval of use from Society in accordance with	**1** For the purpose of **5.12.1, Part N of the Rules**, the materials used for piping, valves and fittings are to comply with the relevant requirements in **Chapter 6, Part N of the Rules**, and at the same time, to conform to the relevant requirements in **Part K of the Rules**. However, for materials used for the piping specified in the following **(1)** to **(5)**, those conforming to *JIS* or other standards deemed appropriate by the Society may be used where they comply with the requirements in **Chapter 6, Part N of the Rules**. (1) Pipes, valves and pipe fittings used for cargo piping and process piping with design pressures not exceeding 1 *MPa* and design temperatures of 0°C or more. (2) Valves and pipe fittings used for cargo piping and process piping with design pressures not exceeding 3 *MPa* and design temperatures of 0°C or more as well as nominal diameters less than 100 *A*. (3) Pipes, valves and pipe fittings used for accessory piping or instrumentation piping with diameters not exceeding 25 *mm* irrespective of design pressure and design temperature. (4) Open-ended pipes provided inside and outside cargo tanks, excluding membrane and semi-membrane tanks, with design temperatures of -55°C or higher. (5) Pipe joints of a butt welded type and pipe joints of a slip-on sleeve welded type (such as elbows, reducers, tees, bends and sockets, etc.) for which hot forming or heat treatment is carried out during their manufacturing process in accordance with the requirements in **D12.6.1(1)(a)ii), Part D of the Rules** on the condition that they receive approval of use from Society in accordance with **Chapter 12, Part 6**	Wording correction

Chapter 12, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.	**of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.	

Guidance for the survey and construction of steel ships Part N N13 N13.6.4

Correction	Present	Note
Two oxygen sensors are to be positioned at appropriate locations in the space or spaces containing the inert gas system, in accordance with **Annex 1** "Guidance for Equipment and Fittings of Ships Carrying Liquefied Gases in Bulk" and paragraph 15.2.2.4.5.4 of the *FSS Code*, for all gas carriers, irrespective of the carriage of cargo indicated by an "**A**" in column "**f**" of **Table N19.1**<u>**, Part N of the Rules**</u>.	Two oxygen sensors are to be positioned at appropriate locations in the space or spaces containing the inert gas system, in accordance with **Annex 1** "**Guidance for Equipment and Fittings of Ships Carrying Liquefied Gases in Bulk**" and paragraph 15.2.2.4.5.4 of the *FSS Code*, for all gas carriers, irrespective of the carriage of cargo indicated by an "**A**" in column "**f**" of **Table N19.1**.	Wording correction

Guidance for the survey and construction of steel ships Part N N16 N16.7.1-2

Correction	Present	Note
2 A suitable pressure relief system is to be provided for air inlet manifolds, scavenge spaces and exhaust systems which are not designed to accommodate the worst-case overpressure due to ignited gas leaks or justified by the safety concept of the engine. Pressure relief systems provided for air inlet manifolds, scavenge spaces and for exhaust gas manifolds composing exhaust systems are to be approved by the Society in accordance with **Chapter ~~6~~13, Part ~~13~~6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**. A detailed evaluation regarding the hazard potential of overpressure in air inlet manifolds, scavenge spaces and exhaust systems is to be carried out and reflected in the safety concept of the engine. In the case of crankcases, explosion relief valves, as required in **2.4.3, Part D of the Rules**, are considered suitable for the gas operation of the engine. For engines not covered by **2.4.3, Part D of the Rules**, a detailed evaluation regarding the hazard potential of fuel gas accumulation in the crankcase is to be carried out.	**2** A suitable pressure relief system is to be provided for air inlet manifolds, scavenge spaces and exhaust systems which are not designed to accommodate the worst-case overpressure due to ignited gas leaks or justified by the safety concept of the engine. Pressure relief systems provided for air inlet manifolds, scavenge spaces and for exhaust gas manifolds composing exhaust systems are to be approved by the Society in accordance with **Chapter 6, Part 13 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**. A detailed evaluation regarding the hazard potential of overpressure in air inlet manifolds, scavenge spaces and exhaust systems is to be carried out and reflected in the safety concept of the engine. In the case of crankcases, explosion relief valves, as required in **2.4.3, Part D of the Rules**, are considered suitable for the gas operation of the engine. For engines not covered by **2.4.3, Part D of the Rules**, a detailed evaluation regarding the hazard potential of fuel gas accumulation in the crankcase is to be carried out.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 2 2.1.1-1

Correction	Present	Note
1 The requirements in this Chapter apply to the displacement type or centrifugal type gas compressors used for compression of boil-off gas from the cargo or pressure transfer in accordance with the requirements in **N5.6.2-2** and **N7.3.1-~~1~~2(1)(b)vii) of the Guidance**.	**1** The requirements in this Chapter apply to the displacement type or centrifugal type gas compressors used for compression of boil-off gas from the cargo or pressure transfer in accordance with the requirements in **N5.6.2-2** and **N7.3.1-1(1)(b)vii)** of the Guidance.	Reference correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 4 4.1.1-1

Correction	Present	Note
The requirements in this Chapter apply to heat exchangers used for the heating, evaporation or cooling of cargo liquid or vapour in accordance with the requirements in **N7.3.1-2~~(1)(b)vii)~~ of the Guidance**.	The requirements in this Chapter apply to heat exchangers used for the heating, evaporation or cooling of cargo liquid or vapour in accordance with the requirements in **N7.3.1-2(1)(b)vii)** of the Guidance.	Reference correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 8 8.5.1

Correction	Present	Note
The inert gas storage system is to be subjected to the tests specified in **8.3.1-1** and **-2**, **8.4.1~~-1~~(1)** and **(2)**, and **8.4.8**, and in addition to the requirements in **8.2.5** in a corresponding manner.	The inert gas storage system is to be subjected to the tests specified in **8.3.1-1** and **-2**, **8.4.1-1(1)** and **(2)**, and **8.4.8**, and in addition to the requirements in **8.2.5** in a corresponding manner.	Reference correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 12 12.1.1-1

Correction	Present	Note
1 The requirements in this Chapter apply to the insulation materials used in the cargo containment systems in accordance with the requirements in **N4.19.3-3~~(1)~~ of the Guidance**.	**1** The requirements in this Chapter apply to the insulation materials used in the cargo containment systems in accordance with the requirements in **N4.19.3-3(1)** of the Guidance.	Reference correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 12 Table 12.1

Correction	Present	Note
		Wording correction

Table 12.1 Test Items for Insulation Materials

No.	Test item	Procedure of test
1	Compatibility with the cargo	Tensile, compression, shearing, bending test after dipping in the cargo (*DIN 53428*)
2	Solubility in the cargo	Changes in the size and weight of test specimen before and after dipping in the cargo (*DIN 53428*)
3	Absorption of the cargo	Comparison of weight of test specimen or test of water absorbing properties before and after dipping in the cargo (*DIN 53428*)
4	Shrinkage	*ISO 2796, ASTM D 2126*
5	Aging	—
6	Closed cell content	*ISO 4590, ASTM D 6226*
7	Density	*ISO 845, ASTM D 1622*
8	Mechanical properties ・Bending strength ・Compression strength ・Tensile strength ・Shearing strength	 *ISO 1209, ASTM C 203, ASTM D790* *ASTM D 695, ASTM D 1621* *ISO 1926, EN 1607, ASTM D 638, ASTM D 1623* *ISO 1922, ASTM C 273*
9	Thermal expansion	*ASTM D 696, ASTM E 831*
10	Abrasion	—
11	Cohesion	*ASTM D 1623*
12	Thermal conductivity	*ISO 8302, JIS A 1412, ASTM C 177, ASTM C 518*
13	Resistance to vibration	*ISO 10055*
14	Resistance to fire and flame spread	*JIS A 9511, DIN 4102*
15	Resistance to fatigue failure and crack propagation	—

~~Note:~~

~~Of those test items given above, necessary items are to be selected and tested depending on the insulation system. However, at least, the test items 4, 6 (for independent foam material only), 7, 8, 12 and 14 are to be dealt with for all the insulation systems. See **N4.19.3-4** to -7.~~

Note:

Of those test items given above, necessary items are to be selected and tested depending on the insulation system. However, at least, the test items 4, 6 (for independent foam material only), 7, 8, 12 and 14 are to be dealt with for all the insulation systems. See **N4.19.3-4** to **-7 of the Guidance**.

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 14 14.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed type and portable type oxygen content measuring equipment used to verify that the oxygen content is less than the controlled value in accordance with the requirements in **N13.6.20**~~.~~ **of the Guidance**.	The requirements in this Chapter apply to the fixed type and portable type oxygen content measuring equipment used to verify that the oxygen content is less than the controlled value in accordance with the requirements in **N13.6.20**.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 15 15.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed type and portable type humidity measuring equipment used for the purpose of verifying that the humidity is less than the controlled value in accordance with the requirements in **N9.2.2**~~**(3)(b).**~~ **of the Guidance**.	The requirements in this Chapter apply to the fixed type and portable type humidity measuring equipment used for the purpose of verifying that the humidity is less than the controlled value in accordance with the requirements in **N9.2.2(3)(b)**.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 17 17.1.1

Correction	Present	Note
The requirements in this Chapter apply to the water spray system in accordance with the requirements in **N11.3.2**~~**(2).**~~ **of the Guidance**.	The requirements in this Chapter apply to the water spray system in accordance with the requirements in **N11.3.2(2)**.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 18 18.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed nitrogen gas fire-extinguishing systems in accordance with the requirements in **N11.5.2**~~.~~ **of the Guidance**.	The requirements in this Chapter apply to the fixed nitrogen gas fire-extinguishing systems in accordance with the requirements in **N11.5.2**.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 19 19.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed or portable mechanical ventilation systems provided in the gas-dangerous areas and cargo motor rooms in accordance with the requirements in **N12.1.7**~~**(1)**~~ and **N12.2.1**~~.~~ **of the Guidance**.	The requirements in this Chapter apply to the fixed or portable mechanical ventilation systems provided in the gas-dangerous areas and cargo motor rooms in accordance with the requirements in **N12.1.7(1)** and **N12.2.1**.	Reference correction

Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 20 20.1.1

Correction	Present	Note
The requirements in this Chapter apply to cargo hoses for cargo transfer in accordance with the requirements in **N5.11.7**~~.~~ **of the Guidance**.	The requirements in this Chapter apply to cargo hoses for cargo transfer in accordance with the requirements in **N5.11.7**.	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 2A Chapter 1 1.3

Correction	Present	Note
The plans and documents to be submitted are as follows. (1) Plans and documents for approval (a) General arrangement (b) Items specified in **18.1.3(1)**, **(3**~~) and,~~), **(5)** and **(6), Part D of the Rules** (c) Operating instructions for the automatic control devices and remote control devices (including sequential control, combustion control and safety devices). (d) Diagrams for automatic combustion control devices of *GCU* (e) Gas fuel burning devices (f) Gas leak protection devices for connections between *GCU*s and gas fuel supply piping systems (g) Gas fuel supply piping systems (including details of valves and pipe fittings) and devices to protect surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for gas fuel supply systems (i) Prototype test plans for gas fuel burning devices and test results (j) Onboard test plans (k) Test plans of gas trials specified in **4.20.3, Part N of the Rules** (l) Other drawings and data deemed necessary by the Society depending upon the type of *GCU* (2) Plans and documents for reference (a) Instruction manuals (including guidance for onboard maintenance, inspection and overhaul) (b) Other drawings and data deemed necessary by the Society	The plans and documents to be submitted are as follows. (1) Plans and documents for approval (a) General arrangement (b) Items specified in **18.1.3(1)**, **(3)** and, **(5)** and **(6), Part D of the Rules** (c) Operating instructions for the automatic control devices and remote control devices (including sequential control, combustion control and safety devices). (d) Diagrams for automatic combustion control devices of *GCU* (e) Gas fuel burning devices (f) Gas leak protection devices for connections between *GCU*s and gas fuel supply piping systems (g) Gas fuel supply piping systems (including details of valves and pipe fittings) and devices to protect surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for gas fuel supply systems (i) Prototype test plans for gas fuel burning devices and test results (j) Onboard test plans (k) Test plans of gas trials specified in **4.20.3, Part N of the Rules** (l) Other drawings and data deemed necessary by the Society depending upon the type of *GCU* (2) Plans and documents for reference (a) Instruction manuals (including guidance for onboard maintenance, inspection and overhaul) (b) Other drawings and data deemed necessary by the Society	Wording correction

Guidance for the survey and construction of steel ships Part N Annex 5 Chapter 2 2.2

Correction	Present	Note
The following procedures will demonstrate the adequacy of a tank vent system to limit the pressure rise in a cargo tank to not greater than 120% of *MARVS* during all conditions, including fire conditions implicit in **8.4~~,~~.1, Part N of the Rules**. (1) Prepare a simplified flow sheet of the cargo tank vent system, identifying the fittings and the actual diameters and lengths of pipe. (*See* **Fig. 1**) Divide the system into sections between nodes at changes in pipe diameter and at interconnections with flows from other relief valves. List the fittings and their dynamic loss coefficients. Calculate the external surface area of the piping sections between the nodes. (*See* **Table 2**) (2) Calculate the *PRV* capacity (Q_{GCC}) of each tank *PRV*, in m^3/s of air at standard conditions in accordance with **8.4.1, Part N of the Rules** and note the installed rated capacity (Q_{IR}) of each *PRV* in m^3/s air at standard conditions at 120% of *MARVS*. The calculation should be done for the highest gas factor of the products included in the cargo list. Determine the mass flows for cargo conditions at 120% of *MARVS* through each *PRV* for the *PRV* capacity and for the installed rated capacity for both all vapour flow and for two-phase cargo flow. Also calculate the mass flow at *MARVS* for the installed rated capacity on all vapour flow. Equation (1) may be used for all vapour mass flow and equations (2), (3) and (4) may be used for two-phase mass flow. (3) Estimate all the vapour flow pressure drop at 120% of *MARVS* in the pipe from the cargo tank connection to the *PRV* inlet flange, working from the known tank	The following procedures will demonstrate the adequacy of a tank vent system to limit the pressure rise in a cargo tank to not greater than 120% of *MARVS* during all conditions, including fire conditions implicit in **8.4,1 Part N of the Rules**. (1) Prepare a simplified flow sheet of the cargo tank vent system, identifying the fittings and the actual diameters and lengths of pipe. (*See* **Fig. 1**) Divide the system into sections between nodes at changes in pipe diameter and at interconnections with flows from other relief valves. List the fittings and their dynamic loss coefficients. Calculate the external surface area of the piping sections between the nodes. (*See* **Table 2**) (2) Calculate the *PRV* capacity (Q_{GCC}) of each tank *PRV*, in m^3/s of air at standard conditions in accordance with **8.4.1, Part N of the Rules** and note the installed rated capacity (Q_{IR}) of each *PRV* in m^3/s air at standard conditions at 120% of *MARVS*. The calculation should be done for the highest gas factor of the products included in the cargo list. Determine the mass flows for cargo conditions at 120% of *MARVS* through each *PRV* for the *PRV* capacity and for the installed rated capacity for both all vapour flow and for two-phase cargo flow. Also calculate the mass flow at *MARVS* for the installed rated capacity on all vapour flow. Equation (1) may be used for all vapour mass flow and equations (2), (3) and (4) may be used for two-phase mass flow. (3) Estimate all the vapour flow pressure drop at 120% of *MARVS* in the pipe from the cargo tank connection to the *PRV* inlet flange, working from the known tank	Wording correction

pressure towards the *PRV*. This pressure drop is calculated by using the difference in stagnation pressures. Therefore, the second term of equation (5) may be used for pipe sections of constant diameter. For contractions, equation (5.1) may be used. (4) Check that the pressure drop at each *PRV* inlet complies with **2.1-3(1)** at the *PRV* capacity for all vapour flow to assure adequate relief capacity. For the calculation, the vapour mass flow of product (W_g) from equation (1) should be used. (5) Estimate the two-phase flow pressure in the discharge pipe at the location of discharge to the atmosphere. Equation (6) may be used, with the *PRV* two-phase mass flow (W', equation (4)) to assure adequate relief capacity, to check if the exit pressure is greater than 1 *bar a*. (6) Estimate the vapour fraction and two-phase density in the vent pipe at the exit to the atmosphere, assuming transfer of the fire heat flux of 108 kW/m^2 through the uninsulated vent piping. (*See* **2.3-7**, the same being referred to hereinafter) Equations (7) and (8) may be used. (7) Estimate the built-up back pressure at the *PRV* outlet flange, commencing from the known vent pipe exit pressure, calculating the pressure drop between pipe nodes and working, section by section, back up the pipe to the *PRV*. Equations (7), (8), (9) and (5) may be used with iteration until the upstream node absolute pressure, vapour fraction and specific volume are justified and assuming that vapour is saturated. At pipe diameter expansion fittings where fluid velocity is reduced, a pressure recovery generally occurs. This recovery is overestimated in case of two-	pressure towards the *PRV*. This pressure drop is calculated by using the difference in stagnation pressures. Therefore, the second term of equation (5) may be used for pipe sections of constant diameter. For contractions, equation (5.1) may be used. (4) Check that the pressure drop at each *PRV* inlet complies with **2.1-3(1)** at the *PRV* capacity for all vapour flow to assure adequate relief capacity. For the calculation, the vapour mass flow of product (W_g) from equation (1) should be used. (5) Estimate the two-phase flow pressure in the discharge pipe at the location of discharge to the atmosphere. Equation (6) may be used, with the *PRV* two-phase mass flow (W', equation (4)) to assure adequate relief capacity, to check if the exit pressure is greater than 1 *bar a*. (6) Estimate the vapour fraction and two-phase density in the vent pipe at the exit to the atmosphere, assuming transfer of the fire heat flux of 108 kW/m^2 through the uninsulated vent piping. (*See* **2.3-7**, the same being referred to hereinafter) Equations (7) and (8) may be used. (7) Estimate the built-up back pressure at the *PRV* outlet flange, commencing from the known vent pipe exit pressure, calculating the pressure drop between pipe nodes and working, section by section, back up the pipe to the *PRV*. Equations (7), (8), (9) and (5) may be used with iteration until the upstream node absolute pressure, vapour fraction and specific volume are justified and assuming that vapour is saturated. At pipe diameter expansion fittings where fluid velocity is reduced, a pressure recovery generally occurs. This recovery is overestimated in case of two-	

phase flow when dynamic loss coefficients for single-phase flow are used. For the purpose of these guidelines, the static exit pressure of a conical expansion fitting is assumed to be equal to the static inlet pressure. (8) Estimate the choking pressure (p_{ec}) at the exit of every section with the mass-flux (G_p) in that section for the pipeline between the *PRV* and the vent exit. Equation (6) may be used. Compare the pressure distribution along the vent line as derived from item **2.2(5)** to **2.2(7)**, with the different choking pressures for each section as derived from equation (6). If choking pressure at any location exceeds the corresponding calculated pressure derived from **2.2(5)** to **2.2(7)**, the calculation as described in **2.2(5)** to **2.2(7)** should be repeated commencing from choking point location and corresponding choking pressure, working back up the pipe to the *PRV*. If choking pressure at more than one location exceeds the corresponding calculated pressure derived from **2.2(5)** to **2.2(7)**, the commencing point of the recalculation should be taken as the choking location point giving the highest built-up back pressure. (9) Check that the built-up back pressure at each *PRV* outlet complies with **2.1-4**, at the *PRV* capacity for two-phase mass flow (W', equation (4)) at 120% of *MARVS*, to assure stable operation of the valves, thus assuring adequate relief capacity.	phase flow when dynamic loss coefficients for single-phase flow are used. For the purpose of these guidelines, the static exit pressure of a conical expansion fitting is assumed to be equal to the static inlet pressure. (8) Estimate the choking pressure (p_{ec}) at the exit of every section with the mass-flux (G_p) in that section for the pipeline between the *PRV* and the vent exit. Equation (6) may be used. Compare the pressure distribution along the vent line as derived from item **2.2(5)** to **2.2(7)**, with the different choking pressures for each section as derived from equation (6). If choking pressure at any location exceeds the corresponding calculated pressure derived from **2.2(5)** to **2.2(7)**, the calculation as described in **2.2(5)** to **2.2(7)** should be repeated commencing from choking point location and corresponding choking pressure, working back up the pipe to the *PRV*. If choking pressure at more than one location exceeds the corresponding calculated pressure derived from **2.2(5)** to **2.2(7)**, the commencing point of the recalculation should be taken as the choking location point giving the highest built-up back pressure. (9) Check that the built-up back pressure at each *PRV* outlet complies with **2.1-4**, at the *PRV* capacity for two-phase mass flow (W', equation (4)) at 120% of *MARVS*, to assure stable operation of the valves, thus assuring adequate relief capacity.	

Guidance for the survey and construction of steel ships Part N Annex 5 Chapter 2 Table 1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr>
<td colspan="2">
Table 1 Worked Example of the Procedure
<table>
<tr><th>Applicable provisions</th><th>Worked example of the procedure</th></tr>
<tr><td>2.2(1)</td><td>Fig.~~Figure~~ 1 is a simplified flow sheet of a cargo tank vent system with one vent stack connected to two tanks. The system has been divided into sections between nodes, marked by capital letters A to N, at changes in pipe diameter and at interconnections with flows from other relief valves at F and J. Table 2 lists the vent pipe lengths and external surface areas, the fittings in the vent system and
their Friction Resistance Factors. Table 3 gives some typical values for Friction Resistance
Factors (<i>N</i>). <i>N</i> may vary with pipe diameter.</td></tr>
<tr><td>2.2(2)</td><td>The minimum tank relief capacity of the Rules, Q_{GCC}, is calculated for the ship tank which has an external surface area of 747 m^2 and <i>MARVS</i> of 11.0 <i>bar g</i>.
By 8.4.1, Part N of the Rules for propane:
for 1.2・<i>MARVS</i> = 11.0・1.2＋1.0 = 14.2 <i>bar a</i>
$L = 308.6$ <i>kj/kg</i>
$T = 273 + 41 = 313^{\circ}$ <i>K</i>
$D = 0.635$, for $k = 1.13$
$Z = 1.0$
$M = 44$
$A^{0.82} = 227.05$
$F = 0.2$
$$Q_{GCC} = 0.2 \cdot \frac{12.4}{308.6 \cdot 0.635} \cdot \sqrt{\left(\frac{1.0 \cdot 314}{44}\right)} \cdot 227.05 = 7.68\ m^3/s \text{ of air at } STP$$
The Q_{GCC} for the actual case study ship tank = 7.71 m^3/s of air at standard conditions (STP) of 273° <i>K</i> and 1.013 <i>bar a</i>.
The installed rated capacity for two 75 <i>mm</i>×100 <i>mm</i> AGCo Type 95 <i>POPRV</i>s
Q_{IR} = 20.52 m^3/s of air at standard conditions (STP).
or 20.52/7.71 = 2.66 times the Q_{GCC}
By equation (1) for all vapour mass flow rate from tank for propane:
where h_{fg} at 1.2・<i>MARVS</i> = 308600 <i>J/kg</i>
$$W_g = \frac{71000 \cdot 0.2 \cdot 227.05}{308600} = 10.44\ kg/s$$
or <i>PRV</i> all vapour mass flow rate per <i>PRV</i> = 5.22 <i>kg/s</i>
and installed rated all vapour mass flow rate per <i>PRV</i> = 5.22・2.66 = 13.89 <i>kg/s</i>
where h_{fg} at <i>MARVS</i> = 322800<i>J/kg</i>
$$W_g = \frac{71000 \cdot 0.2 \cdot 227.05}{322800} = 9.99 kg/s$$</td></tr>
</table>
</td>
<td>Reference correction
and
Wording correction</td>
</tr>
</table>

		By equation (4) for two-phase mass flow rate through provided *PRV* At 1.2 ・ *MARVS*: $W = 28.25 \cdot 7.71/20.52 = 10.6$ *kg/s*		
	2.2(3)	The all vapour capacity and two-phase pressure drops in the pipe from the cargo tank to the *PRV* inlet are calculated as the difference in stagnation pressures by using the second term of equation (5) for pipe sections of constant diameter and by using equation (5.1) for conical reduction fittings (contractions). (1) For provided *PRV* all vapour capacity at 1.2 ・ *MARVS* Section N to M: $\Delta p = 0.5 \cdot 665^2 \cdot 0.0330 \cdot 0.528 = 3900$ *P*a (0.039 *bar*) where from **Table 2**: $G_p = 5.22/\pi \cdot 0.1^2/4 = 665$ *kg/m²s* ; $4f \cdot L/D + N = 0.528$ $v = 0.0330$ *m³/kg* with incompressible flow assumed Conical reduction fitting M: where $G_p = 5.22/\pi \cdot 0.08^2/4 = 1038$ *kg/m²s*; $N = 0.1$ $\Delta p = 0.5 \cdot 1038^2 \cdot 0.0330 \cdot 0.1 = 1800$ *Pa* (0.018 *bar*) Section M to PRV: $\Delta p = 0.5 \cdot 1038^2 \cdot 0.0330 \cdot 0.027 = 500$ *Pa* (0.005 *bar*) here and from **Table 2** $G_p = 1038$ *kg/m²s* ; $4f \cdot L/D + N = 0.027$ Section N to *PRV* total $\Delta p = 0.039 + 0.018 + 0.005 = 0.06$ *bar* (2) For installed rated all vapour capacity at *MARVS* Section N to M: $\Delta p = 0.5 \cdot 1689^2 \cdot 0.0392 \cdot 0.528 = 29500$*Pa* (0.295 *bar*) here $G_p = 1689$ *kg/m²s* ; $v = 0.0392$ *m³/kg* with incompressible flow assumed Conical reduction fitting M: $\Delta p = 0.5 \cdot 2640^2 \cdot 0.0392 \cdot 0.1 = 13700$*Pa* (0.137 *bar*) here, $G_p = 2640$ *kg/m²s* Section M to *PRV*: $\Delta p = 0.5 \cdot 2640^2 \cdot 0.0392 \cdot 0.027 = 3700$*Pa* (0.037 *bar*) here, $G_p = 2640$ *kg/m²s* Section N to *PRV* total $\Delta p = 0.295 + 0.137 + 0.037 = 0.47$ *bar*		

	2.2(4)	Check system compliance with requirements of **2.1-3~~.(~~(1)** At divided *PRV* all vapour capacity at 1.2・*MARVS* $\Delta p \cdot 100/p_{MARVS}$ = 0.06・100/11.0 = 0.55% ≤ 3% For requirement of **2.1-3~~.(~~(2)** At divided *PRV* two-phase capacity at 1.2・*MARVS* = 0.016・100/11.0=0.15% At installed rated all vapour capacity at *MARVS* = 0.47・100/11.0=4.27% At installed rated two-phase capacity at *MARVS* = 0.10・100/11.0=0.91% $\Delta p_{close} > 0.02\ p_{MARVS} + \Delta p_{inlet}$ $>$ 0.02・11.0 + 0.47 $>$ 0.69 *bar* For stable operation of the *PRV*, closing pressure should be less than: 11.0 - 0.69 ≤ 10.31 *bar g* for a pop-action *POPRV*		
	2.2(5)	The two-phase critical exit choking pressure is estimated, using saturated propane properties at 1.2・*MARVS* (14.2 *bar a*) By equation (6) where $\omega = \frac{466.2\cdot2931\cdot314\cdot1420000\cdot(0.0330-0.0021)^2}{(832800-52400)^2}$ = 6.09 and where W' for Code discharge from four *PRV*s = 10.6・4 = 42.4 *kg/s* ; D_{exit}=0.5 *m* ; $G_p = \frac{42.4}{\pi\cdot0.5^2/4}$= 215.9 *kg/m²s* $p_{ec} = 215.9 \cdot \left[\frac{1420000\cdot6.09}{466.2}\right]^{1/2}$ = 215.9・136.2 = 29400 *Pa* (0.29 *bar a*) Thus the exit flow is not choked and the vent pipe exit pressure is 100000 *Pa* (1 *bar a*)		
	2.2(6)	The exit vapour fraction,x_e, assuming a fire exposure heat flux of 108 *kW/m²* into uninsulated vent discharge piping at the Code rated two-phase flow rate, is estimated. By equation (7) and from ~~Table2~~**Table 2**: $\sum \frac{a}{W} = \frac{27.86+4.50}{42.4} + \frac{1.81}{21.2} + \frac{1.72}{10.6}$= 1.011 *m²s/kg* and $x_e = \frac{524200-320300+108000\cdot1.011}{425200}$= 0.74 By equation (8) and (9) ρ_e= 3.14 *kg/m²* and v_e= 0.319 *m²s/kg*		

	2.2(7) **2.2(8)** **2.2(9)**	The pressure drops between the vent discharge piping nodes are estimated by equation (5), with iteration until the upstream node absolute pressure, vapour fraction and specific volume are justified, and working section by section back up the pipe to the *PRV*. Section BA Section B to A and from ~~Table2~~**Table 2**: $G_p = 4 \cdot 10.6/\pi \cdot 0.5^2/4$ = 215.9 *kg/m²s* By first approximation Δp = 0.5 ・ 215.9^2 ・ 0.319 ・ 2.313= 17200 *Pa* (0.17 *bar*) Try p_B = 1.18 *bar a* By equation (7) and from ~~Table2~~**Table 2**: $\sum a\big/W$= 27.86/42.4 + 1.81/21.2 + 1.72/10.6 = 0.9048 m^2s/kg and $x_B = \frac{524200-328700+108000\cdot0.9048}{421600}$= 0.70 By equation (8) and (9) ρ_B= 2.73/0.70 = 3.90 kg/m^3 ; v_B= 0.256 m^2s/kg By equation (5) $\Delta p = 215.9^2$ ・ (0.319 - 0.256) + 0.5 ・ 215.9^2 (0.319 + 0.256)/2 ・ 2.313 = 2900 + 15500 = 18400 *Pa* (0.18 *bar*) and p_B = 1.18 *bar a* By **2.2(8)** and p_{ec} at B = 337.3 ・ 136.2 = 46000 *Pa* (0.46 *bar a*) using mass flux at exit from section F to B Section FB Section F to B and from ~~Table2~~**Table 2**: where $G_p = 4 \cdot 10.6/\pi \cdot 0.4^2/4$= 337.3 *kg/m²s* By first approximation Δp = 0.5 ・ 337.3^2 ・ 0.256 ・ 1.808= 26300 *Pa* (0.26 *bar*) By equation (7) and from ~~Table2~~**Table 2**:		
		where $\sum a\big/W$= 1.81/21.2 + 1.72/10.6 = 0.2477 m^2s/kg and $x_F = \frac{524200-343300+108000\cdot0.2477}{412600}$= 0.50 By equation (8) and (9) ρ_F = 3.45/0.50 = 6.90 kg/m^3 ; v_F = 0.145 m^3/kg By equation (5) $\Delta p = 337.3^2$(0.256 - 0.145) + 0.5 ・ 337.3^2 (0.256 + 0.1456)/2 ・ 1.808 = 12600 + 20600 = 33200 *Pa* (0.33 *bar*) and p_F = 1.18 + 0.33 = 1.51 *bar a* Section GF		

Section G to F and from ~~Table2~~**Table 2**:
where $G_p = 2 \cdot 10.6/\pi \cdot 0.4^2/4$= 168.7 kg/m^2s
By first approximation Δp = 0.5 • 168.7^2 • 0.145 • 1.132 = 2300 *Pa* (0.02 *bar*)

This pressure drop is too small to justify a more accurate estimation. For the purposes of this calculation, we can assume the specific volume remains constant from G to L.

Section JG

Section L to J and from ~~Table2~~**Table 2**:
where $G_p = 2 \cdot 10.6/\pi \cdot 0.3^2/4$= 299.9 kg/m^2s
By first approximation Δp = 0.5 • 299.9^2 • 0.145 • 0.071 = 500 *Pa* (0.01 *bar*)

Section LJ

Section L to J and from ~~Table2~~**Table 2**:
$G_p = 10.6/\pi \cdot 0.3^2/4$= 149.9 kg/m^2s
By first approximation Δp = 0.5 • 149.9^2 • 0.145 • 0.621= 1000 *Pa* (0.01 *bar*)
p_L= 1.51 + 0.02 + 0.01 + 0.01 = 1.55 *bar a* at exit from conical expansion fitting
By equation (7)

$$x_L = \frac{524200-344600+0}{415800} = 0.432$$

By equations (8) and (9)
ρ_L= 3.54/0.432 = 8.19 kg/m^3 ; v= 0.122 m^2s/kg

Conical expansion fitting at L

In accordance with procedure 2.2-7, the static inlet pressure to this fitting is assumed to be 1.55 *bar a*.

Section *PRV* - L

Section PRV and from ~~Table2~~**Table 2**:
where $G_p = 10.6/\pi \cdot 0.1^2/4$= 1349.9 kg/m^2s
p_{ec} at exit of pipe section from PRV to L = 1349 • 136.2 = 184000 *Pa* (*1.84 bar a*) > 1.55
Therefore, the exit of the 100 *mm* diameter pipe section *PRV* to L is choked and the exit pressure at L is 1.84 *bar a*.
By equation (7) at 1.84 *bar a*

$$x_L = \frac{524200-355100+0}{411600} = 0.411$$

By equation (8) and (9)
ρ_L= 4.18/0.411 = 10.17 kg/m^3 ; v_L= 0.098 m^2s/kg
By first approximation Δp = 0.5 • 1349^2 • 0.098 • 0.043= 3800 *Pa* (0.04 *bar*)
p_{PRV} = 1.84 + 0.04 = 1.88 *bar a* ; Try 2.42 *bar a*
By equation (7)

		$x_{PRV} = \frac{524200-371800}{403600}$= 0.378		
		By equation (8) and (9) ρ_{PRV}= 5.49/0.378 = 14.52 *kg/m*^{3} ; v_{PRV}= 0.069 *m*^{2}*s/kg* By equation (5) *Δ p*= 1349^2・(0.098 - 0.069) + 0.5・1349^2 (0.098 + 0.069)/2・0.043 = 52800 + 3300 = 56100 *Pa* (0.56 *bar*) and p_{PRV} = 1.84 + 0.56 = 2.40 *bar a* (1.40 *bar g*) Back pressure at divided *PRV* two-phase flow at 14.2 *bar a* is 1.40×100/11.0 = 12.7% of set pressure (gauge) which assures adequate relief capacity for *POPRV*s.		
	Summary of predictions	The predicated two-phase propane properties are shown at five node points in the *PRV* discharge vent piping, in **Fig. 2** at the divided *PRV* flow-rate, and in **Table**~~**Fig.**~~ **3** at the installed rated flow-rate. The flowing pressure drop in the piping to the *PRV* inlet is less than **2.1-3.** The built-up back pressure at the *PRV* outlet is also less than **2.1-4** requires for the pilot-operated *PRV*s installed.		

Guidance for the survey and construction of steel ships Part N Annex 5 Chapter 2 Table 2

Correction	Present	Note
		Wording correction

Table 2 List of Vent Pipe Lengths and Surface Areas, Fittings and Dynamic Loss Coefficients

Pipe section	Length (mm)	Pipe diameter (mm)	Surface area (m^2)	Fitting	Specification	Dynamic loss coefficients N	Pipe $4fL/D$	$4fL/D + \sum N$
A	1,080	500/700	2.04	A= Cowl/vent exit	-	2.25	—	2.25
A - B	1,565	500	2.46				0.063	0.063
Section total			4.50					2.313
B - C	2,650	400	3.331	B= Conical expansion	d/D=0.8	＊	0.132	0.132
C - D	2,546	400	3.20	C= Long radius bend	90°	0.3	0.127	0.427
D - E	14,880	400	18.71	D= Bend	45°	0.2	0.744	0.944
E - F	2,093	400	2.63	E= Bend	45°	0.2	0.105	0.305
Section total			27.86					
F - G	642	400	0.81	F= Hard tee	-	1.1	0.032	1.132
G - J	1,066	300	1.00	G= Conical expansion	d/D=0.75	＊	0.071	0.071
Section total			1.81					
J - K	1,340	300	1.263	J= Soft tee	-	0.3	0.089	0.389
K - L	481	300	0.453	K= Bend	45°	0.2	0.032	0.232
Section total			1.72					
L - PRV	216	300/100		L= Conical expansion	d/D=0.33	＊	0.043	0.043
PRV - M	108	80					0.027	0.027
M	108	80		M= Conical reduction	d/D=0.8	0.1	-	0.1
M - N	142	80		N= Square edged inlet	-	0.5	0.028	0.528

Note:

＊: Ignored under procedure **2.2**~~(~~-7~~)~~

Guidance for the survey and construction of steel ships Part S S9 S9.1.3-1

Correction	Present	Note
1 The inert gas systems for use in filling and discharging the cargo tanks specified in **9.1.3(1), Part S of the Rules** are to comply with the following requirements, except where the installation of inert gas system is required by **4.5.5, Part R of the Rules**. (1) Inert gas systems using oil fired inert gas generators are to comply with the requirements of **R4.5.5-4(3)** (2) Inert gas systems using nitrogen generators are to comply with the requirements of **R4.5.5-4(2)**. (3) Inert gas systems using boiler flue gases are to comply with the requirements of **R4.5.5-4(4), Part R of the ~~Rules~~Guidance**.	**1** The inert gas systems for use in filling and discharging the cargo tanks specified in **9.1.3(1), Part S of the Rules** are to comply with the following requirements, except where the installation of inert gas system is required by **4.5.5, Part R of the Rules**. (1) Inert gas systems using oil fired inert gas generators are to comply with the requirements of **R4.5.5-4(3)** (2) Inert gas systems using nitrogen generators are to comply with the requirements of **R4.5.5-4(2)**. (3) Inert gas systems using boiler flue gases are to comply with the requirements of **R4.5.5-4(4), Part R of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part S S10 S10.1.5-1

Correction	Present	Note
1 The wording "the satisfaction of the Society" in **10.1.5**, **Part S of the Rules** mean that the explosion-protected electrical equipment complying with the requirements in **2.16, Part H of the Rules** and grouped into appropriate Apparatus Group and Temperature Class according to the column "***i***" of **Table S17.1** **Part S of the Rules** or equivalent thereto for an environmental gas or vapours condition.	**1** The wording "the satisfaction of the Society" in **10.1.5**, **Part S of the Rules** mean that the explosion-protected electrical equipment complying with the requirements in **2.16, Part H of the Rules** and grouped into appropriate Apparatus Group and Temperature Class according to the column "***i***" **of Table S17.1** or equivalent thereto for an environmental gas or vapours condition.	Wording correction

Guidance for the survey and construction of steel ships Part S S11 S11.4.1-2

Correction	Present	Note
2 The capacity of fire extinguishing agent of dry chemical fire extinguishers is to be the greater or more of the following capacities: (1) The capacity required in *MSC.*1/*Circ.*1315/Rev.1 referred to in **N11.4.1** (2) 1.5 *kg/m*^{2} of the total deck area of the cargo tanks which are expected to carry simultaneously the cargo for which the fire extinguishing equipment is required. For other requirements for installations, the requirements in **11.4, Part N of the Rules** apply correspondingly.	**2** The capacity of fire extinguishing agent of dry chemical fire extinguishers is to be the greater or more of the following capacities: (1) The capacity required in *MSC.*1/*Circ.*1315 referred to in **N11.4.1** (2) 1.5 *kg/m*^{2} of the total deck area of the cargo tanks which are expected to carry simultaneously the cargo for which the fire extinguishing equipment is required. For other requirements for installations, the requirements in **11.4, Part N of the Rules** apply correspondingly.	Wording correction

Guidance for the survey and construction of steel ships Part S S12 S12.2.4

Correction	Present	Note
The ventilation ducts in cargo pump room are to be provided at the upper part of cargo pump room, and in addition, to be arranged in compliance with the requirements in **R4.5.4-1(1), Part R of the ~~Rules~~Guidance**. Further, the suction openings are to be arranged as far apart as practicable from each other, for instance on a diagonal line of cargo pump room, in consideration of the vapour density of the cargo and air intaking efficiency.	The ventilation ducts in cargo pump room are to be provided at the upper part of cargo pump room, and in addition, to be arranged in compliance with the requirements in **R4.5.4-1(1), Part R of the Rules**. Further, the suction openings are to be arranged as far apart as practicable from each other, for instance on a diagonal line of cargo pump room, in consideration of the vapour density of the cargo and air intaking efficiency.	Wording correction

Guidance for the survey and construction of steel ships Part S S13 S13.3.1

Correction	Present	Note
The wording "the requirements otherwise specified" in **13.3.1, Part S of the Rules** means those specified in **R4.5.10-2(1**~~**), Part R.**~~**)**.	The wording "the requirements otherwise specified" in **13.3.1, Part S of the Rules** means those specified in **R4.5.10-2(1), Part R**.	Wording correction

Guidance for the survey and construction of steel ships Part S S14 S14.1.2

Correction	Present	Note
The protective equipment used to handle the cargo to which the requirements in this Part apply for once or more are, as a rule, to be stored in the lockers provided within the cargo area. One set of these is , to be stored in the locker near the cargo pump room at all times. The construction of the special locker for the storage of protective equipment provided in the cargo area is to comply with the requirement in **~~Chapter 19~~11.3.3, Part 1, Part C of the Rules**. When this can not be complied with under avoidable reasons, protective equipment may be stored in the store or locker having no openings to accommodation space and service space and located outside the cargo area as shown in **Fig. S14.1.2-1**. This requirement does not apply to brand new protective equipment, unused equipment, or equipment which has not been used since undergoing a through cleaning process.	The protective equipment used to handle the cargo to which the requirements in this Part apply for once or more are, as a rule, to be stored in the lockers provided within the cargo area. One set of these is , to be stored in the locker near the cargo pump room at all times. The construction of the special locker for the storage of protective equipment provided in the cargo area is to comply with the requirement in **Chapter 19, Part C of the Rules**. When this can not be complied with under avoidable reasons, protective equipment may be stored in the store or locker having no openings to accommodation space and service space and located outside the cargo area as shown in **Fig. S14.1.2-1**. This requirement does not apply to brand new protective equipment, unused equipment, or equipment which has not been used since undergoing a through cleaning process.	Reference correction

Guidance for the survey and construction of steel ships Part S S14 S14.2.10

Correction	Present	Note
Decontamination showers and eyewash are to be located in the vicinity of cargo manifolds, cargo pump room, etc. which are vulnerable to cargo splashes, and shielding walls are to be provided to prevent crew members from being sprayed by any additional cargo splashes during eye washing. The construction of a special locker for the storage of protective equipment provided in the cargo area is to comply with the requirement in **~~Chapter 19~~11.3.3, Part 1, Part C of the Rules**. The piping for decontamination showers and eyewash is to be permanent metal piping complying with the requirements in **Chapter 6, Part S of the Rules**, and it is to be provided with thermal insulation or drain connections at suitable locations to prevent freeze damage.	Decontamination showers and eyewash are to be located in the vicinity of cargo manifolds, cargo pump room, etc. which are vulnerable to cargo splashes, and shielding walls are to be provided to prevent crew members from being sprayed by any additional cargo splashes during eye washing. The construction of a special locker for the storage of protective equipment provided in the cargo area is to comply with the requirement in **Chapter 19, Part C of the Rules**. The piping for decontamination showers and eyewash is to be permanent metal piping complying with the requirements in **Chapter 6, Part S of the Rules**, and it is to be provided with thermal insulation or drain connections at suitable locations to prevent freeze damage.	Reference correction

Guidance for the survey and construction of steel ships Part S S15 S15.13.3

Correction	Present	Note
With respect to the requirements specified in **15.~~3~~13.3(2), Part S of the Rules**, in case where additives have oxygen-dependent inhibitor, *MSC-MEPC.2/Circ.14*, as amended, is to be applied.	With respect to the requirements specified in **15.3.3(2), Part S of the Rules**, in case where additives have oxygen-dependent inhibitor, *MSC-MEPC.2/Circ.14*, as amended, is to be applied.	Reference correction

Guidance for the survey and construction of steel ships Part S S15 S15.19.6

Correction	Present	Note
The level detecting devices used for high level alarm system and overflow control system are to be of type approved in accordance with the requirements of **Chapter 4, Part 7 of the** “**Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**”. When modular units are provided in the control room or on bridge, level indicators and visible alarms independent from those **(a)**, **(b)** and **(c)** given in the preceding **S15.19.5**~~**, Part S**~~ are to be provided. Such audible alarms are not intended to identify alarms and thus they may not necessarily be independent. Visible and audible alarms are to be provided also in the cargo areas. Visible alarms are to be provided at such locations readily recognizable also from shore side. In case where no control room is provided, audible and visible alarms are to be provided in the cargo control room. Except for entering the cargo tanks which have thoroughly been washed clean, the testing device for detecting ends is to be provided outside the tank. Simulation test of electric circuit or self-monitoring circuit may be accepted.	The level detecting devices used for high level alarm system and overflow control system are to be of type approved in accordance with the requirements of **Chapter 4**, **Part 7 of the** “**Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**”. When modular units are provided in the control room or on bridge, level indicators and visible alarms independent from those **(a)**, **(b)** and **(c)** given in the preceding **S15.19.5, Part S** are to be provided. Such audible alarms are not intended to identify alarms and thus they may not necessarily be independent. Visible and audible alarms are to be provided also in the cargo areas. Visible alarms are to be provided at such locations readily recognizable also from shore side. In case where no control room is provided, audible and visible alarms are to be provided in the cargo control room. Except for entering the cargo tanks which have thoroughly been washed clean, the testing device for detecting ends is to be provided outside the tank. Simulation test of electric circuit or self-monitoring circuit may be accepted.	Wording correction

Guidance for the survey and construction of steel ships Part I I8 I8.3.6

Correction	Present	Note
With respect to the provisions of **8.3.6-4, Part I of the Rules,** when the direct analysis is not based on beam theory, the allowable shear stress is to be τ_y.	With respect to the provisions of **8.3.6-4**, when the direct analysis is not based on beam theory, the allowable shear stress is to be τ_y.	Wording correction

Guidance for the survey and construction of steel ships Part O O1 O1.2.4

Correction	Present	Note
With respect to ships complying with relevant requirements given in this part, notations corresponding to the purpose of those ships defined in **1.3.2, Part O of the Rules** are affixed to the classification characters as follows: (1) Dredgers: *Dredger* (abbreviated to *D*) (2) Crane ships (a) Ship-type ships: *Crane Vessel* (abbreviated to *CV*) (b) Barge-type ships: *Floating Crane* (abbreviated to *FC*) (3) Vessels engaged in towing operations (a) Tugs: *Tug* (b) Ocean Tugs: *Towing Vessel* (abbreviated to *TV*) (c) Escort Tugs: *Escort Vessel* (abbreviated to *EV*) (4) Pusher tugs: *Pusher* (5) Fire fighting vessels With respect to fire fighting vessels, the following notations corresponding to the installed fire fighting equipment defined in **O6.4.2-1** are affixed. (a) FFV1 vessels: *Fire Fighting Vessel-Type 1* (abbreviated to *FFV1*) (b) FFV2 vessels: *Fire Fighting Vessel-Type 2* (abbreviated to *FFV2*) (c) FFV3 vessels: *Fire Fighting Vessel-Type 3* (abbreviated to *FFV3*) In cases where the fire fighting equipment specified in **Table O1.2.4** is installed, additional descriptions can be affixed. (For example, *Fire Fighting Vessel-Type 1 equipped with WSS, MFG*) In addition, if foam monitor systems for fire fighting complying with the requirements given	With respect to ships complying with relevant requirements given in this part, notations corresponding to the purpose of those ships defined in **1.3.2, Part O of the Rules** are affixed to the classification characters as follows: (1) Dredgers: *Dredger* (abbreviated to *D*) (2) Crane ships (a) Ship-type ships: *Crane Vessel* (abbreviated to *CV*) (b) Barge-type ships: *Floating Crane* (abbreviated to *FC*) (3) Vessels engaged in towing operations (a) Tugs: *Tug* (b) Ocean Tugs: *Towing Vessel* (abbreviated to *TV*) (c) Escort Tugs: *Escort Vessel* (abbreviated to *EV*) (4) Pusher tugs: *Pusher* (5) Fire fighting vessels With respect to fire fighting vessels, the following notations corresponding to the installed fire fighting equipment defined in **O6.4.2-1** are affixed. (a) FFV1 vessels: *Fire Fighting Vessel-Type 1* (abbreviated to *FFV1*) (b) FFV2 vessels: *Fire Fighting Vessel-Type 2* (abbreviated to *FFV2*) (c) FFV3 vessels: *Fire Fighting Vessel-Type 3* (abbreviated to *FFV3*) In cases where the fire fighting equipment specified in **Table O1.2.4** is installed, additional descriptions can be affixed. (For example, *Fire Fighting Vessel-Type 1 equipped with WSS, MFG*) In addition, if foam monitor systems for fire fighting complying with the requirements given	

in **O6.4.2-9** are installed, the following additional descriptions are affixed. (For example, *Fire Fighting Vessel-Type 3 equipped with WSS, FMS3*) (~~a~~d) *FMS1*: Have capacities of more than 1,000*l*/ *minute* (~~b~~e) *FMS2*: Have capacities of more than 3,000*l*/ *minute* (~~c~~f) *FMS3*: Have capacities of more than 6,000*l*/*minute* (~~d~~g) *FMS4*: Have capacities of more than 12,000 *l*/*minute* (~~e~~h) *FMS5*: Two fixed low expansion foam monitors that have capacities more than 5,000 *l*/*minute* (6) Offshore supply vessels: *Offshore Supply Vessel* (abbreviated to *OSV*) (7) Anchor handling vessels: *Anchor Handling Vessel* (abbreviated to *AHV*) (8) Vessels engaged in laying objects on the seabed (a) Cable laying vessels: *Cable Layer* (abbreviated to *CL*) (b) Pipe laying vessels: *Pipe Layer* (abbreviated to *PL*) (9) Oil Recovery Vessels: *Oil Recovery Vessel* (abbreviated to *ORV*) (10) Wind turbine installation ships (a) Ship-type ships: *Wind Turbine Installation Ship* (abbreviated to *WTIS*) (b) Barge-type ships: *Wind Turbine Installation Barge* (abbreviated to *WTIB*) (c) Self-elevating ships: *Self-elevating Wind Turbine Installation Ship* (abbreviated to *SEWTIS*) or *Self-elevating Wind Turbine Installation Barge* (abbreviated to *SEWTIB*)	in **O6.4.2-9** are installed, the following additional descriptions are affixed. (For example, *Fire Fighting Vessel-Type 3 equipped with WSS, FMS3*) (a) *FMS1*: Have capacities of more than 1,000*l*/ *minute* (b) *FMS2*: Have capacities of more than 3,000*l*/ *minute* (c) *FMS3*: Have capacities of more than 6,000*l*/*minute* (d) *FMS4*: Have capacities of more than 12,000 *l*/*minute* (e) *FMS5*: Two fixed low expansion foam monitors that have capacities more than 5,000 *l*/*minute* (6) Offshore supply vessels: *Offshore Supply Vessel* (abbreviated to *OSV*) (7) Anchor handling vessels: *Anchor Handling Vessel* (abbreviated to *AHV*) (8) Vessels engaged in laying objects on the seabed (a) Cable laying vessels: *Cable Layer* (abbreviated to *CL*) (b) Pipe laying vessels: *Pipe Layer* (abbreviated to *PL*) (9) Oil Recovery Vessels: *Oil Recovery Vessel* (abbreviated to *ORV*) (10) Wind turbine installation ships (a) Ship-type ships: *Wind Turbine Installation Ship* (abbreviated to *WTIS*) (b) Barge-type ships: *Wind Turbine Installation Barge* (abbreviated to *WTIB*) (c) Self-elevating ships: *Self-elevating Wind Turbine Installation Ship* (abbreviated to *SEWTIS*) or *Self-elevating Wind Turbine Installation Barge* (abbreviated to *SEWTIB*)	Wording correction

(d) Column-stabilized ships: *Column-stabilized Wind Turbine Installation Unit* (abbreviated to *CSWTIU*) (11) Wind Farm Support Vessel (a) Ships primarily engaged in transporting workers to the offshore wind turbines and serving as accommodation facilities for workers *Wind Farm Support Vessel - Service Operation Vessel* (abbreviated as *WFSV-SOV*) (b) Ships primarily engaged in transporting workers *Wind Farm Support Vessel -Crew Transfer Vessel* (abbreviated as *WFSV-CTV*) In addition, in cases where **12.8.2-3, Part O of the Rules** is applied and when requested by shipowners, the following additional notation may be affixed. "*Heavy Deck Cargo*" (abbreviated as *HDC*) (12) Notations, except for that mentioned above, corresponding to intended purposes of work-ships within the **(1)** to **(11)** mentioned above, notations corresponding to each purpose are affixed. (For example, Tugs-cum-Fire fighting vessels: *Tug/Fire Fighting Vessel-Type 1*)	(d) Column-stabilized ships: *Column-stabilized Wind Turbine Installation Unit* (abbreviated to *CSWTIU*) (11) Wind Farm Support Vessel (a) Ships primarily engaged in transporting workers to the offshore wind turbines and serving as accommodation facilities for workers *Wind Farm Support Vessel - Service Operation Vessel* (abbreviated as *WFSV-SOV*) (b) Ships primarily engaged in transporting workers *Wind Farm Support Vessel -Crew Transfer Vessel* (abbreviated as *WFSV-CTV*) In addition, in cases where **12.8.2-3, Part O of the Rules** is applied and when requested by shipowners, the following additional notation may be affixed. "*Heavy Deck Cargo*" (abbreviated as *HDC*) (12) Notations, except for that mentioned above, corresponding to intended purposes of work-ships within the **(1)** to **(11)** mentioned above, notations corresponding to each purpose are affixed. (For example, Tugs-cum-Fire fighting vessels: *Tug/Fire Fighting Vessel-Type 1*)	

Guidance for the survey and construction of steel ships Part P P1 P1.1.6-1

Correction	Present	Note
1 With respect to units complying with relevant requirements given in this Part, notations corresponding to the purposes of those units defined in **1.2.3**, **Part P of the Rules** are affixed to the Classification Characters as follows. (1) Mobile offshore drilling units (a) Self-elevating mobile offshore drilling units: *Self-Elevating Drilling Unit* (abbreviated to *SEDU*) (b) Column-stabilized mobile offshore drilling units: *Column-Stabilized Drilling Unit* (abbreviated to *CSDU*) (c) Ship-type mobile offshore drilling units: *Drilling Vessel* (abbreviated to *DV*) (d) Barge-type mobile offshore drilling units: *Drilling Barge* (abbreviated to *DB*) In addition, for units complying with the following requirements in addition to requirements in this part, the notation of "*Mobile offshore Drilling Unit*" (abbreviated to *MODU*) is affixed. (For example, in the case of self-elavating mobile offshore drilling units, *Mobile Offshore Drilling Unit/ Self-Elevating Drilling Unit* (abbreviated to *MODU/SEDU*) (a) **1.1.1-2~~, Part 1~~ of the Rules for Safety Equipment** (b) **1.1.1-3 of the Rules for Cargo Handling Appliances** (c) **1.1.1-3 of the Rules for Radio Installations** (d) **The Rules for Anti-Fouling Systems on Ships** (2) Storage units: *Storage Barge* (abbreviated to *SB*) In cases where oil is stored, the notation to be affixed is "*Oil Storage Barge*", and additional descriptions regarding flash points of oil are affixed. (For example,	**1** With respect to units complying with relevant requirements given in this **Part**, notations corresponding to the purposes of those units defined in **1.2.3**, **Part P of the Rules** are affixed to the Classification Characters as follows. (1) Mobile offshore drilling units (a) Self-elevating mobile offshore drilling units: *Self-Elevating Drilling Unit* (abbreviated to *SEDU*) (b) Column-stabilized mobile offshore drilling units: *Column-Stabilized Drilling Unit* (abbreviated to *CSDU*) (c) Ship-type mobile offshore drilling units: *Drilling Vessel* (abbreviated to *DV*) (d) Barge-type mobile offshore drilling units: *Drilling Barge* (abbreviated to *DB*) In addition, for units complying with the following requirements in addition to requirements in this part, the notation of "*Mobile offshore Drilling Unit*" (abbreviated to *MODU*) is affixed. (For example, in the case of self-elavating mobile offshore drilling units, *Mobile Offshore Drilling Unit/ Self-Elevating Drilling Unit* (abbreviated to *MODU/SEDU*) **(a) 1.1.1-2, Part 1 of the Rules for Safety Equipment** **(b) 1.1.1-3 of the Rules for Cargo Handling Appliances** **(c) 1.1.1-3 of the Rules for Radio Installations** **(d) The Rules for Anti-Fouling Systems on Ships** (2) Storage units: *Storage Barge* (abbreviated to *SB*) In cases where oil is stored, the notation to be affixed is "*Oil Storage Barge*", and additional descriptions regarding flash points of oil are affixed. (For example,	Wording correction

Oil Storage Barge, Flash point below 60℃) (3) Moored floating units: Notations corresponding to the purpose of such units are affixed. (For example, Hotel ships: *Floating Hotel* (abbreviated to *FH*)) (4) Plant barges: Notations corresponding to the types of installed industrial factories are affixed. (For example, Plant barges for generating electricity: *Power Plant Barge* (abbreviated to *PPB*)) (5) Accommodation barges: *Accommodation Barge* (abbreviated to *AB*)	*Oil Storage Barge, Flash point below 60℃*) (3) Moored floating units: Notations corresponding to the purpose of such units are affixed. (For example, Hotel ships: *Floating Hotel* (abbreviated to *FH*)) (4) Plant barges: Notations corresponding to the types of installed industrial factories are affixed. (For example, Plant barges for generating electricity: *Power Plant Barge* (abbreviated to *PPB*)) (5) Accommodation barges: *Accommodation Barge* (abbreviated to *AB*)	

Guidance for the survey and construction of steel ships Part P P9 P9.4.2-2

Correction	Present	Note
2 Supporting structures of drilling derricks (1) A structural analysis is to be performed for drilling derricks, drilling floors and substructures (including the supporting structures of the drilling derricks and drilling floors) in accordance with the requirements in **7.2.1, Part P of the Rules**. Allowable stresses are not to exceed the values in **Table P7.1, Part P of the Rules** according to the kind of stress. (2) The loads used for structural analysis in **(1)** above are to be in accordance with the following **(a)** and **(b)**. In addition, when deemed necessary by the Society, additional requirements may be requested. (a) Loads taken in operating condition, the dead load of the ship, loads caused by snow and icing, as well as the loads transmitted from hooks, fastlines, deadlines, setbacks, rotary tables and riser tensioners are to be considered in the static loading condition. (b) The static loads specified in **(a)** as well as dynamic loads such as wind loads and loads due to ship acceleration and inclination are to be considered in combined loads. (3) For self-elevating ships having movable cantilever constructions and skid beams which support substructures, a structural analysis is to be performed for such cantilever constructions and skid beams according to **7.2.1, Part P of the Rules**. Allowable stresses are not to exceed the values in **Table P7.1, Part P of the Rules** according to the kind of stress. Reaction forces transmitted from movable cantilever constructions and skid beams are to be considered in the loads acting on hull constructions.	**2** Supporting structures of drilling derricks (1) A structural analysis is to be performed for drilling derricks, drilling floors and substructures (including the supporting structures of the drilling derricks and drilling floors) in accordance with the requirements in **7.2.1, Part P of the Rules**. Allowable stresses are not to exceed the values in **Table P7.1** according to the kind of stress. (2) The loads used for structural analysis in **(1)** above are to be in accordance with the following **(a)** and **(b)**. In addition, when deemed necessary by the Society, additional requirements may be requested. (a) Loads taken in operating condition, the dead load of the ship, loads caused by snow and icing, as well as the loads transmitted from hooks, fastlines, deadlines, setbacks, rotary tables and riser tensioners are to be considered in the static loading condition. (b) The static loads specified in **(a)** as well as dynamic loads such as wind loads and loads due to ship acceleration and inclination are to be considered in combined loads. (3) For self-elevating ships having movable cantilever constructions and skid beams which support substructures, a structural analysis is to be performed for such cantilever constructions and skid beams according to **7.2.1, Part P of the Rules**. Allowable stresses are not to exceed the values in **Table P7.1** according to the kind of stress. Reaction forces transmitted from movable cantilever constructions and skid beams are to be considered in the loads acting on hull constructions.	Wording correction

Guidance for the survey and construction of steel ships Part P P10 P10.7.1-1

Correction	Present	Note
1 The DP-control systems and computer systems used for the Class 2 DPS and Class 3 DPS are to be approved by the Society in accordance with the requirements of **Chapter 1, Part 7 of the “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”**.	**1** The DP-control systems and computer systems used for the Class 2 DPS and Class 3 DPS are to be approved by the Society in accordance with the requirements of **Chapter 1, Part 7 of the “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”**.	Wording correction

Guidance for the survey and construction of steel ships Part P P10 P10.7.1-2

Correction	Present	Note
2 The DP-control systems and computer systems used for the Class 1 DPS, as a rule, are to be approved by the Society in accordance with the requirements of **Chapter 1, Part 7 of the “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”** as far as practicable.	**2** The DP-control systems and computer systems used for the Class 1 DPS, as a rule, are to be approved by the Society in accordance with the requirements of **Chapter 1, Part 7 of the “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”** as far as practicable.	Wording correction

Guidance for the survey and construction of steel ships Part P P11 P11.1.14-3

Correction	Present	Note
3 The wording “requirements specified otherwise by the Society” specified in **11.1.14-7, Part P of the Rules** means the requirements specified in **Annex 5.3.~~5~~1, Part D of the Rules**.	**3** The wording “requirements specified otherwise by the Society” specified in **11.1.14-7, Part P of the Rules** means the requirements specified in **Annex 5.3.5, Part D of the Rules**.	Reference correction

Guidance for the survey and construction of steel ships Part P P12 P12.1.3-2

Correction	Present	Note
2 The wording “subject to the approval of the Society” in **12.1.3-2, Part P of the Rules** means Chapter 4, **Part ~~5~~2 of the ~~“Guidance~~Rules for ~~the Approval and Type~~ Approval of ~~Materials~~Manufacturers and ~~Equipment for Marine Use”~~Service Suppliers**. Equipment and cables approved are made public on the “List of Approved Materials and Equipment”.	**2** The wording “subject to the approval of the Society” in **12.1.3-2, Part P of the Rules** means **Part 5 of the “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”**. Equipment and cables approved are made public on the “List of Approved Materials and Equipment”.	Reference correction

Guidance for the survey and construction of steel ships Part PS PS8 PS8.1.3-1

Correction	Present	Note
1 The wording "subject to Society approval" in **8.1.3-2, Part PS of the Rules** means **Chapter 4, Part ~~5~~2 of the "~~Guidance~~Rules for ~~the Approval and Type~~ Approval of ~~Materials~~Manufacturers and ~~Equipment for Marine Use~~Service Suppliers"**. Equipment and cables approved for use are made public on the "List of Approved Materials and Equipment".	**1** The wording "subject to Society approval" in **8.1.3-2, Part PS of the Rules** means **Part 5 of the "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**. Equipment and cables approved for use are made public on the "List of Approved Materials and Equipment".	Reference correction

Guidance for the survey and construction of steel ships Part PS PS8 PS8.2.1-1

Correction	Present	Note
1 In **8.2.1-2, Part PS of the Rules**, the electrical installations listed in the following **(1)** to **(3)** may be excluded from those electrical installations which are to be power supplied in the event of any one generating set being stopped. (1) Thrusters not forming part of the main propulsion machinery or positioning systems specified in **Chapter~~.~~ 4, Part PS of the Rules** (2) Refrigerating compressors for air conditioning installations (3) Others as deemed acceptable by the Society	**1** In **8.2.1-2, Part PS of the Rules**, the electrical installations listed in the following **(1)** to **(3)** may be excluded from those electrical installations which are to be power supplied in the event of any one generating set being stopped. (1) Thrusters not forming part of the main propulsion machinery or positioning systems specified in **Chapter.4, Part PS of the Rules** (2) Refrigerating compressors for air conditioning installations (3) Others as deemed acceptable by the Society	Wording correction

Guidance for the survey and construction of steel ships Part PS PS8 PS8.3.3-2

Correction	Present	Note
2 With respect to the requirements given in **8.3.3(2)(a), Part PS of the Rules**, in cases where inverters or converters are connected to the output circuits of batteries (consumer side), maximum permitted voltage fluctuations may be taken as those specified in ~~Table~~Tables **H2.1(a) or H2.1(b), 2.1.2-3, Part H of the Rules** respectively, notwithstanding any battery voltage drops.	**2** With respect to the requirements given in **8.3.3(2)(a), Part PS of the Rules**, in cases where inverters or converters are connected to the output circuits of batteries (consumer side), maximum permitted voltage fluctuations may be taken as those specified in **Table H2.1(a)** or **H2.1(b), 2.1.2-3, Part H of the Rules** respectively, notwithstanding any battery voltage drops.	Wording correction

Guidance for the survey and construction of steel ships Part R R4 R4.5.3-1

Correction	Present	Note
1 When a ship carrying dangerous chemical in bulk equipped with controlled tank venting systems complying with **8.~~8.~~2, Part S of the Rules** carries crude oil, oil or other similar liquid cargoes with a vapour pressure less than 0.28 *MPa* absolute at 37.8℃, the mentioned ship may be regarded as a ship complying with the requirements in **4.5.3-1, Part R of the Rules**.	**1** When a ship carrying dangerous chemical in bulk equipped with controlled tank venting systems complying with **8.8.2, Part S of the Rules** carries crude oil, oil or other similar liquid cargoes with a vapour pressure less than 0.28 *MPa* absolute at 37.8℃, the mentioned ship may be regarded as a ship complying with the requirements in **4.5.3-1, Part R of the Rules**.	Wording correction

Guidance for the survey and construction of steel ships Part R R4 R4.5.7-4

Correction	Present	Note
4 The wording “deemed appropriate by the Society” in **4.5.7(1)** and **(2)**, **Part R** of the Rules means to be approved by the Society in accordance with **Chapter 7, Part 7 of “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”** or to pass the test of the official organization deemed appropriate by the Society.	**4** The wording “deemed appropriate by the Society” in **4.5.7(1)** and **(2)**, **Part R** of the Rules means to be approved by the Society in accordance with **Chapter 7**, **Part 7** of **“Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”** or to pass the test of the official organization deemed appropriate by the Society.	Wording correction

Guidance for the survey and construction of steel ships Part R R9 R9.2.4-1

Correction	Present	Note
1 With respect to the requirements of **9.2.4-2, Part R of the Rules**, the provisions of **R9.2.3-1** to **R9.2.3-15** ~~of R9.2.3~~ are to be referred to.	**1** With respect to the requirements of **9.2.4-2, Part R of the Rules**, the provisions of **-1** to **-15** of **R9.2.3** are to be referred to.	Wording correction

Guidance for the survey and construction of steel ships Part R R10 R10.5.2-1

Correction	Present	Note
1 With respect to the requirements of **10.5.2, Part R of the Rules**, the provisions of **R10.5.1-1** to ~~-5 of~~ **R10.5.1-5** of this Guidance are to be applied.	**1** With respect to the requirements of **10.5.2, Part R of the Rules**, the provisions of **-1** to **-5** of **R10.5.1** of this Guidance are to be applied.	Wording correction

Guidance for the survey and construction of steel ships Part R R10 R10.5.3-1

Correction	Present	Note
1 With respect to the requirements of **10.5.3, Part R of the Rules**, the provisions of **R10.5.1-1** to ~~-5 of~~ **R10.5.1-5** and **R10.5.2-2** of this Guidance are to be applied.	**1** With respect to the requirements of **10.5.3, Part R of the Rules**, the provisions of **-1** to **-5** of **R10.5.1** and **R10.5.2-2** of this Guidance are to be applied.	Wording correction

Guidance for the survey and construction of steel ships Part R R10 R10.6.2-2

Correction	Present	Note
2 The wording "appropriate fire-extinguishing arrangement approved by the Society" means, in principle, the fire-extinguishing arrangement specified in **10.6.2-1** or **10.6.2-3** ~~of 10.6.2~~, **Part R of the Rules** as appropriately.	**2** The wording "appropriate fire-extinguishing arrangement approved by the Society" means, in principle, the fire-extinguishing arrangement specified in **-1** or **-3** of **10.6.2, Part R of the Rules** as appropriately.	Wording correction

Guidance for the survey and construction of steel ships Part R R10 R10.7.1-1

Correction	Present	Note
1 With respect to the provisions of **10.7, Part R of the Rules**, for container cargo holds fitted with partially weathertight hatch covers in accordance with the provisions of **14.6.7, Part 1, Part C of the Rules**, closing appliances for such holds may be omitted, provided that the amount of carbon dioxide is increased in accordance with the provisions of **R25.2.2-~~4~~5**.	**1** With respect to the provisions of **10.7, Part R of the Rules**, for container cargo holds fitted with partially weathertight hatch covers in accordance with the provisions of **14.6.7, Part 1, Part C of the Rules**, closing appliances for such holds may be omitted, provided that the amount of carbon dioxide is increased in accordance with the provisions of **R25.2.2-4**.	Reference correction

Guidance for Marine Pollution Prevention Systems Part 2 Chapter 4 4.1.2-5

Correction	Present	Note
5 At an occasional survey in the event where the exhaust gas cleaning system to which **1.2.2-1, Part 8** ~~and/or~~ ~~**2.2-1, Part 8**~~ applies is newly installed on board the ship, a survey is to be carried out in accordance with **2.1.2-1(6)(c)** and **2.1.3-5(2)(b), Part 2 of the Rules**.	**5** At an occasional survey in the event where the exhaust gas cleaning system to which **1.2.2-1, Part 8** and/or **2.2-1, Part 8** applies is newly installed on board the ship, a survey is to be carried out in accordance with **2.1.2-1(6)(c)** and **2.1.3-5(2)(b), Part 2 of the Rules**.	Reference correction

Guidance for Cargo Refrigerating Installations Annex 1.1.1-2 1.1.1-1

Correction	Present	Note
1 Application (1) The Guidance applies to the survey and construction of the controlled atmosphere systems (hereinafter referred to as the “**CA** system”) which may be considered under the provision of **1.1.1-5 of the ~~“~~Rules for Cargo Refrigerating Installations~~”~~** (hereinafter referred to as “the Rules”) and is to be registered under **Chapter 3** ~~in “~~**of the Regulations for the Classification and Registry of Ships**~~”~~. (2) The Guidance applies to **CA** systems using Nitrogen as a sealing gas. For **CA** system using other gases, the respective requirements will be determined as appropriate.	**1** Application (1) The Guidance applies to the survey and construction of the controlled atmosphere systems (hereinafter referred to as the “**CA** system”) which may be considered under the provision of **1.1.1-5 of the “Rules for Cargo Refrigerating Installations”** (hereinafter referred to as “the Rules”) and is to be registered under **Chapter 3** in “**Regulations for the Classification and Registry of Ships**”. (2) The Guidance applies to **CA** systems using Nitrogen as a sealing gas. For **CA** system using other gases, the respective requirements will be determined as appropriate.	Reference correction

Guidance for Cargo Handling Appliances Chapter 4 4.3.8-2

Correction	Present	Note
2 The method of reinforcement specified in **-1** is to be applied also to gantry cranes and other special cranes having slewing ring.	**2** The method of reinforcement specified in **1** is to be applied also to gantry cranes and other special cranes having slewing ring.	Wording correction

Guidance for Cargo Handling Appliances Chapter 7 7.2.2-3

Correction	Present	Note
3 The "fleet angle" mentioned in **7.2.2-2(1) and 7.2.2-2(2) of the Rules** is the angle α specified in **Fig. 7.2.2-1** and the angle θ specified in **Fig. 7.2.2-2** respectively.	**3** The "fleet angle" mentioned in **7.2.2-2(1) and 7.2.2-2(2) of the Rules** is the angle α specified in **Fig.7.2.2-1** and the angle θ specified in **Fig.7.2.2-2** respectively.	Wording correction

Guidance for Marine Pollution Prevention Systems Part 2 Chapter 3 3.6.2-1

Correction	Present	Note
1 In applying **3.6.2, Part 2 of the Rules**, **2.3.2-2 of the Rules for Automatic and Remote Control Systems** is also to be applied for surveys of periodically unattended machinery spaces.	**1** In applying **3.6.2, Part 2 of the Rules**, **2.3.2-2** of **Rules for Automatic and Remote** is also to be applied for surveys of periodically unattended machinery spaces.	Wording correction

Guidance for Marine Pollution Prevention Systems Part 7 Chapter 1 1.1.1-2

Correction	Present	Note
2 “The reduction of requirements” specified in **1.1.1-4, Part 7 of the Rules** is the reductions within the extent as following **(1)** and **(2)**: (1) Required number of bower anchors may be reduced to one. (2) Steel wire ropes or synthetic fibre ropes may be used in lieu of chain cables provided that the following conditions are satisfied. (a) At least one length of chain is, in principle, to be fitted between the bower anchor and steel wire ropes or synthetic fibre ropes. However, where steel wire ropes or synthetic fibre ropes can be easily connected to the chain cable on board in cases of emergency anchorage, steel wire ropes or synthetic fibre ropes may be stored apart from chain cables. (b) The breaking test load for steel wire ropes or synthetic fibre ropes specified in **Chapter 4** or **5, Part L of the Rules for the Survey and Construction of Steel Ships** is not less than the breaking load for chain cables given in **Table 7.1.1, Part 7 of the Rules**. The breaking test load for chain cables is to be in accordance with the requirements specified in **Chapter 3, Part L of the Rules for the Survey and Construction of Steel Ships** according to the diameter. The length of steel wire ropes or synthetic fibre ropes are to be at least equal to the length of chain cables given in **Table 7.1.1, Part 7 of the Rules**.	**2** “The reduction of requirements” specified in **1.1.1-4, Part 7 of the Rules** is the reductions within the extent as following **(1)** and **(2)**: (1) Required number of bower anchors may be reduced to one. (2) Steel wire ropes or synthetic fibre ropes may be used in lieu of chain cables provided that the following conditions are satisfied. (a) At least one length of chain is, in principle, to be fitted between the bower anchor and steel wire ropes or synthetic fibre ropes. However, where steel wire ropes or synthetic fibre ropes can be easily connected to the chain cable on board in cases of emergency anchorage, steel wire ropes or synthetic fibre ropes may be stored apart from chain cables. (b) The breaking test load for steel wire ropes or synthetic fibre ropes specified in **Chapter 4** or **5, Part L of the Rules for the Survey and Construction of Steel Ships** is not less than the breaking load for chain cables given in **Table 7.1.1, Part 7 of the Rules**. The breaking test load for chain cables is to be in accordance with the requirements specified in **Chapter 3, Part L of the Rules for the Survey and Construction of Steel Ships** according to the diameter. The length of steel wire ropes or synthetic fibre ropes are to be at least equal to the length of chain cables given in **Table 7.1.1 of the Rules**.	Reference correction

Guidance for Marine Pollution Prevention Systems Part 7 Chapter 3 3.1.1

Correction	Present	Note
In **3.1.1-2(2~~)~~), Part 7 of the Rules**, "measures deemed appropriate by the Society" implies that **(1)** and **(2)** below need to be satisfied. (1) Stanchions are to be of increased breadth as in **(a)** to **(c)** below, depending on their arrangement. The figure of these stanchions is given in **Fig.3.1.1-1**. (a) at least every third stanchion is to be of increased breadth : $kb_s \geq 2.9b_s$ (b) at least every second stanchion is to be of increased breadth : $kb_s \geq 2.4b_s$ (c) every stanchion is to be of increased breadth : $kb_s \geq 1.9b_s$ kb_s : increased breath of stanchion (*mm*) b_s : breadth of stanchion according to standards approved by the Society.(*mm*) Stanchions of increased breadth are to be welded to the deck with double continuous fillet welds and a minimum leg size of 7 *mm* or as specified by standards approved by the Society. (2) Stanchions with increased breadth, as described in **(1)** above, are to be aligned with the members below the deck. These members are to be a minimum of 100x12 *mm* flat bar welded to the deck by double continuous fillet welds. The stanchions with increased breadth need not be aligned with under deck structures for deck plating exceeding 20 *mm*.	In **3.1.1-2(2)** of the Rules, "measures deemed appropriate by the Society" implies that **(1)** and **(2)** below need to be satisfied. (1) Stanchions are to be of increased breadth as in **(a)** to **(c)** below, depending on their arrangement. The figure of these stanchions is given in **Fig.3.1.1-1**. (a) at least every third stanchion is to be of increased breadth : $kb_s \geq 2.9b_s$ (b) at least every second stanchion is to be of increased breadth : $kb_s \geq 2.4b_s$ (c) every stanchion is to be of increased breadth : $kb_s \geq 1.9b_s$ kb_s : increased breath of stanchion (*mm*) b_s : breadth of stanchion according to standards approved by the Society.(*mm*) Stanchions of increased breadth are to be welded to the deck with double continuous fillet welds and a minimum leg size of 7 *mm* or as specified by standards approved by the Society. (2) Stanchions with increased breadth, as described in **(1)** above, are to be aligned with the members below the deck. These members are to be a minimum of 100x12 *mm* flat bar welded to the deck by double continuous fillet welds. The stanchions with increased breadth need not be aligned with under deck structures for deck plating exceeding 20 *mm*.	Reference correction

Guidance for Marine Pollution Prevention Systems Part 6 Chapter 1 1.10.2

Correction	Present	Note
2 Where the arm of the shaft bracket is of a solid arm made of steel or bronze castings, the scantling of shaft bracket arms is to satisfy with the following formula. $C^2 t \geq \frac{1}{368} k \frac{Ha}{RD_p}$ (m^3) where: C : The longitudinal length of cross section of the arm (*m*). However, if the value exceeds 10t, the length of the arm is to be taken as 10t. (*See* **Fig.6.1.10.1-1**) t : The thickness of cross section of the arm (*m*). (*See* **Fig. 6.1.10.1-1**) a : The lever of the arm (*m*). (*See* **Fig. 6.1.10.1-1**) H : The maximum continuous output of the engine (*kW*). R : The number of maximum continuous revolutions (*rpm*). D_p : As specified in preceding **1.10.1-1(2)**. k : Coefficient corresponding to the ~~chip~~tip clearance as given by the following formula. $\log k = 1.2 - 3.62 \frac{d_0}{D_p}$ d_0 : The ~~chip~~tip clearance (*m*)	**2** Where the arm of the shaft bracket is of a solid arm made of steel or bronze castings, the scantling of shaft bracket arms is to satisfy with the following formula. $C^2 t \geq \frac{1}{368} k \frac{Ha}{RD_p}$ (m^3) where: C : The longitudinal length of cross section of the arm (*m*). However, if the value exceeds 10t, the length of the arm is to be taken as 10t. (*See* **Fig.6.1.10.1-1**) t : The thickness of cross section of the arm (*m*). (*See* **Fig. 6.1.10.1-1**) a : The lever of the arm (*m*). (*See* **Fig. 6.1.10.1-1**) H : The maximum continuous output of the engine (*kW*). R : The number of maximum continuous revolutions (*rpm*). D_p : As specified in preceding **1.10.1-1(2)**. k : Coefficient corresponding to the chip clearance as given by the following formula. $\log k = 1.2 - 3.62 \frac{d_0}{D_p}$ d_0 : The chip clearance (*m*)	Wording correction

Guidance for Marine Pollution Prevention Systems Part 7 Chapter 3 3.6.3

Correction	Present	Note
Closing appliances required in **3.6.3, Part 7 of the Rules** are to be of steel or other equivalent materials.	Closing appliances required in **3.6.3 of the Rules** are to be of steel or other equivalent materials.	Reference correction

Guidance for Marine Pollution Prevention Systems Part 9 Chapter 1 1.2.1-1

Correction	Present	Note
1 The wordings "navigable speed" in **1.2.1-3, Part 9 of the Rules** means a speed at which the ship is capable of steering and being kept navigability for an extended period of time (the period required to get the nearest port for repairs). Normally, 7 *knots* or a speed corresponding to 1/2 of the speed specified in **2.1.8, Part 1 of the Rules** at the ship's full loaded draught, whichever is smaller, may be regarded as a navigable speed.	**1** The wordings "navigable speed" in **1.2.1-3 of the Rules** means a speed at which the ship is capable of steering and being kept navigability for an extended period of time (the period required to get the nearest port for repairs). Normally, 7 *knots* or a speed corresponding to 1/2 of the speed specified in **2.1.8, Part 1 of the Rules** at the ship's full loaded draught, whichever is smaller, may be regarded as a navigable speed.	Reference correction

Guidance for Marine Pollution Prevention Systems Part 9 Chapter 5 5.3.4

Correction	Present	Note
The wording "deemed appropriate by the Society" specified in **5.3.4-2** ~~**of**~~**, Part 9 of the Rules for High Speed Craft** means to be in accordance with the following. In the case of a single waterjet propulsion system fitted onboard the ship, however, the system is to be subject to special consideration by the Society:	The wording "deemed appropriate by the Society" specified in **5.3.4-2 of Part 9** means to be in accordance with the following. In the case of a single waterjet propulsion system fitted onboard the ship, however, the system is to be subject to special consideration by the Society:	Wording correction

Guidance for the Survey and Construction of Passenger Ships Part 2 Chapter 1 1.1.3-1

Correction	Present	Note
1 For the application of the requirements of **1.1.3-3, Part 2 of the Rules**, in addition to the requirements specified in **B1.1.3-~~9~~3** (except for **(22)**), **Part B of the Guidance for the Survey and Construction of Steel Ships**, occasional surveys are to be in accordance with those specified in **(1)** to **(7)** below: ((1) to (7) are omitted.)	**1** For the application of the requirements of **1.1.3-3, Part 2 of the Rules**, in addition to the requirements specified in **B1.1.3-9** (except for **(22)**), **Part B of the Guidance for the Survey and Construction of Steel Ships**, occasional surveys are to be in accordance with those specified in **(1)** to **(7)** below: ((1) to (7) are omitted.)	Reference correction

Guidance for the Survey and Construction of Passenger Ships Part 3 Chapter 3 3.2.1-1

Correction	Present	Note
1 Compressive buckling strength at the midship part of ships having long multi-deckhouses on strength deck is to be in accordance with the follows: (1) The requirements of **3.3.1-1~~, Part 3~~** of the Rules are to be complied with. (2) The application of the compressive buckling strength of the deck which requires the examination specified in **3.1.1** of the Rules and all shell platings, decks, superstructure side platings and plate members of longitudinal bulkhead which is located below the deck and contribute to the longitudinal strength, compressive buckling, torsional buckling of its longitudinal stiffeners and compressive buckling strength of web are to be in accordance with the requirements in **Annex 5.3, Part 1, Part C of the Rules for the Survey and Construction of Steel Ships**. In this case, the determination of moment of inertia for the hull cross section is to be in accordance with the requirements in **An3.1.1~~-1~~(2)~~,~~ ~~Annex 5.3, Part 1, Part C~~ of the Rules**, except for proviso. And, the minimum value of the compressive stress of members specified in **5.3.2, Part 1, Part C of the Rules for the Survey and Construction of**	**1** Compressive buckling strength at the midship part of ships having long multi-deckhouses on strength deck is to be in accordance with the follows: (1) The requirements of **3.3.1-1, Part 3** of the Rules are to be complied with. (2) The application of the compressive buckling strength of the deck which requires the examination specified in **3.1.1** of the Rules and all shell platings, decks, superstructure side platings and plate members of longitudinal bulkhead which is located below the deck and contribute to the longitudinal strength, compressive buckling, torsional buckling of its longitudinal stiffeners and compressive buckling strength of web are to be in accordance with the requirements in **Annex 5.3, Part 1, Part C of the Rules for the Survey and Construction of Steel Ships**. In this case, the determination of moment of inertia for the hull cross section is to be in accordance with the requirements in **3.1.1-1(2)** of the Rules, except for proviso. And, the minimum value of the compressive stress of members specified in **5.3.2, Part 1, Part C of the Rules for the Survey and Construction of Steel Ships** needs not to be taken	Reference correction

Steel Ships needs not to be taken 30/K (N/mm^2), hereinafter K is the material factor and is in accordance with the requirements in **5.2.1-1(1), Part 3** of the Rules. Where, however, longitudinal plate member that compressive buckling strength is not enough and which is considered to give no contribution to the longitudinal strength is located above the strength deck, the sagging moment which arises under navigation is to be in accordance with the following requirements in **(a)** and **(b)**. (a) The sub-paragraph **(2)** is to be applied only considering frame members, provided the longitudinal plate member that compressive buckling strength is not enough and which is considered to give no contribution to the longitudinal strength is removed from inclusion member of hull cross section modulus and moment of inertia. (b) Frame members may be in accordance with the requirements in **3.1.1-1(2)(b)** of the Rules. (3) Where an approval by the Society is obtained, buckling strength may be examined by other method which is specially considered, notwithstanding the provisions of **(1)** and **(2)**.	30/K (N/mm^2), hereinafter K is the material factor and is in accordance with the requirements in **5.2.1-1(1), Part 3** of the Rules. Where, however, longitudinal plate member that compressive buckling strength is not enough and which is considered to give no contribution to the longitudinal strength is located above the strength deck, the sagging moment which arises under navigation is to be in accordance with the following requirements in **(a)** and **(b)**. (a) The sub-paragraph **(2)** is to be applied only considering frame members, provided the longitudinal plate member that compressive buckling strength is not enough and which is considered to give no contribution to the longitudinal strength is removed from inclusion member of hull cross section modulus and moment of inertia. (b) Frame members may be in accordance with the requirements in **3.1.1-1(2)(b)** of the Rules. (3) Where an approval by the Society is obtained, buckling strength may be examined by other method which is specially considered, notwithstanding the provisions of **(1)** and **(2)**.	

Guidance for the Survey and Construction of Passenger Ships Part 3 Chapter 7 7.4.3

Correction	Present	Note
"Fail-safe" specified in **7.4.3-1, Part 3** ~~in~~**of the Rules** means the system which does not misunderstand that the side door has been closed even if the display unit is out of order by wire disconnection. For example, lamp of the door is turn on in the closing condition and turn off in the opening or abnormal condition.	"Fail-safe" specified in **7.4.3-1**, **Part 3** in the Rules means the system which does not misunderstand that the side door has been closed even if the display unit is out of order by wire disconnection. For example, lamp of the door is turn on in the closing condition and turn off in the opening or abnormal condition.	Wording correction

Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 2 2.3.2-3

Correction	Present	Note
3 The permeability of the cargo area where vehicles or container and others are loaded is to be given in accordance with **Table ~~C~~2.3.2**, corresponding to the draughts specified in **2.1.10** to **2.1.12, Part 41 of the Rules**. Vehicles and containers are to be treated as non-watertight.	**3** The permeability of the cargo area where vehicles or container and others are loaded is to be given in accordance with **Table C2.3.2**, corresponding to the draughts specified in **2.1.10** to **2.1.12**, **Part 4 of the Rules**. Vehicles and containers are to be treated as non-watertight.	Reference correction

Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 2 2.5.1-2

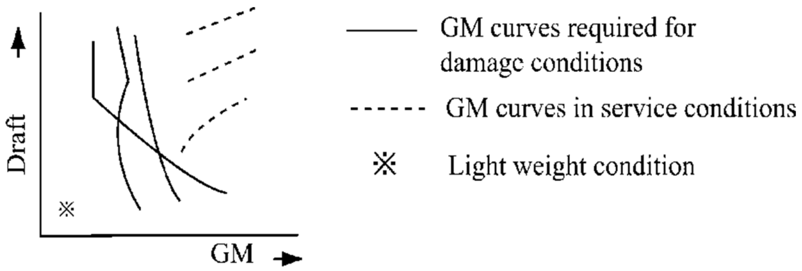
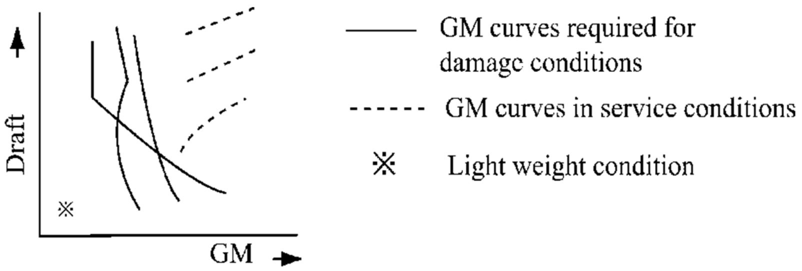
Correction	Present	Note
2 In addition to the requirements in **-1** above, stability computers for passenger ships contracted for construction on or after 1 July 2018 are to comply with the following requirements. In ships which have an onboard stability computer and shore-based support, such software need not be identical. Unless otherwise specified, stability computers are to comply with the requirements in **Annex U1.2.2 "GUIDANCE FOR STABILTY COMPUTER", Part U of the Guidance for the Survey and Construction of Steel Ships**. ((1) and (2) are omitted.) (3) Computational accuracy of program The computational accuracy of the program for the particular ship is to be verified so that the calculation results are within the acceptable tolerances specified in **1.2.3-1** or **1.2.3-2, Annex U1.2.2 "GUIDANCE FOR STABILITY COMPUTER", Part U of the Guidance for the Survey and Construction of Steel Ships** as applicable. Such calculation is to be made by using actual ship data for at least three damage cases, each of them associated with at least three loading conditions which are selected from the ship's approved stability information booklet. Output of the software is to be compared with results of	**2** In addition to the requirements in **-1** above, stability computers for passenger ships contracted for construction on or after 1 July 2018 are to comply with the following requirements. In ships which have an onboard stability computer and shore-based support, such software need not be identical. Unless otherwise specified, stability computers are to comply with the requirements in **Annex U1.2.2** "GUIDANCE FOR STABILTY COMPUTER", **Part U of the Guidance for the Survey and Construction of Steel Ships**. ((1) and (2) are omitted.) (3) Computational accuracy of program The computational accuracy of the program for the particular ship is to be verified so that the calculation results are within the acceptable tolerances specified in **1.2.3-1** or **-2**, **Annex U1.2.2** "GUIDANCE FOR STABILITY COMPUTER", **Part U of the Guidance for the Survey and Construction of Steel Ships** as applicable. Such calculation is to be made by using actual ship data for at least three damage cases, each of them associated with at least three loading conditions which are selected from the ship's approved stability information booklet. Output of the software is to be compared with results of	Reference correction

corresponding load/damage case in the approved damage stability booklet or an alternative independent software source. (4) Approval of software Approval of software is to comply with **1.2.4, Annex U1.2.2 "GUIDANCE FOR STABILITY COMPUTER", Part U of the Guidance for the Survey and Construction of Steel Ships.** Approval of type 4 (SRtP) software is for stability only.	corresponding load/damage case in the approved damage stability booklet or an alternative independent software source. (4) Approval of software Approval of software is to comply with **1.2.4, Annex U1.2.2** "GUIDANCE FOR STABILITY COMPUTER", **Part U of the Guidance for the Survey and Construction of Steel Ships.** Approval of type 4 (SRtP) software is for stability only.	

Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 4 4.3.2-2

Correction	Present	Note
2 In preceding **-1**, **Fig~~.4~~.4.3.2-1** is to be drawn in order to confirm that *GM* in service is greater than *GM* required by intact stability.	**2** In preceding **-1**, **Fig.4.4.3.2-1** is to be drawn in order to confirm that *GM* in service is greater than *GM* required by intact stability.	Reference correction

Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 4 Fig.4.3.2-1

Correction	Present	Note
Fig.~~4.~~4.3.2-1 Allowable GM Curve  	Fig.4.4.3.2-1 Allowable GM Curve  	Reference correction

Guidance for the Survey and Construction of Passenger Ships Part 6 Chapter 2 2.3.3-3

Correction	Present	Note
3 The wording "to be deemed appropriate by the Society" in **2.3.3(3), Part 6 of the Rules** means **Annex H3.3.3~~-3~~(3), Part H of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships**.	**3** The wording "to be deemed appropriate by the Society" in **2.3.3(3), Part 6 of the Rules** means **Annex H3.3.3-3, Part H of the Guidance for the Survey and Construction of Ships**.	Reference correction

Guidance for the Survey and Construction of Passenger Ships Annex 4-1 1.4-1

Correction	Present	Note
1 The system should utilize software capable of analysing the damage stability following any real flooding casualty including multi-compartment, non-linked breaches (see **1.1~~.~~-3, Annex 4-1 of the Guidance**).	**1** The system should utilize software capable of analysing the damage stability following any real flooding casualty including multi-compartment, non-linked breaches (see **1.1.3**).	Reference correction

Guidance for the Survey and Construction of Passenger Ships Annex 4-3 1.4-1

Correction	Present	Note
1 The system should utilize software (see **1.1~~.~~-3, Annex 4-3 of the Guidance**) capable of analysing the damage stability following any real flooding casualty including multi-compartment, non-linked breaches.	**1** The system should utilize software (see **1.1.3**) capable of analysing the damage stability following any real flooding casualty including multi-compartment, non-linked breaches.	Reference correction

Guidance for the Survey and Construction of Passenger Ships Annex 7-1 Table 7-1-A1

Correction	Present	Note
		Wording correction

Table 7-1-A1 Interpretation of *SOLAS* II-2

Number	*SOLAS*	Interpretation
5.3.2.2	Combustible materials used on the surfaces and linings specified in paragraph **3.2.1** ***shall have a calorific value not exceeding*** $45MJ/m^2$ ***of the area for the thickness used.**** The requirements of this paragraph are not applicable to the surfaces of furniture fixed to linings or bulkheads.	*: The fire retardant veneers specified in **R5.3.2-2, Part R of the ~~Rules~~Guidance for the Survey and Construction of Steel Ships**, whose thickness is not more than 1 *mm*, are considered to be corresponding this regulation.
7.5.3	There shall be installed throughout each separate zone, whether vertical or horizontal, in all accommodation and service spaces and, ***where it is considered necessary by the Administration****1, in control stations, except ***spaces which afford no substantial fire risk****2 such as void spaces, sanitary spaces, etc., ***either****3: .1 a fixed fire detection and fire alarm system so installed and arranged as to detect the presence of fire in such spaces and providing smoke detection in corridors, stairways and escape routes within accommodation spaces. Detectors fitted in cabins, when activated, shall also be capable of emitting, or cause to be emitted, an audible alarm within the space where they are located; or .2 an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the relevant requirements of the Fire Safety Systems Code and so installed and arranged as to protect such spaces and, in addition, a fixed fire detection and fire alarm system and so installed and arranged as to provide smoke detection in corridors, stairways and escape routes within accommodation spaces.	*1: The control stations which the crews are not always stationed (steering room is generally considered as the space which crews are always stationed) and the cargo spaces which are usually inaccessible (the cargo spaces are to be provided with fire detection) are applicable to the case. *2: "Spaces which afford no substantial fire risk" are to include deckhouses and boatswain's store which are separated from accommodation spaces (the spaces which are separated from accommodation space by cargo space, special category space or machinery space, or the spaces which main vertical zones are installed in the boundary between accommodation space and which have no direct access from the accommodation space at all). And, "sanitary space" means lavatories, baths, showers, small laundry rooms, etc. *2: Storage rooms for gas bottles of gaseous fuel systems and gas welding equipments where complying with the provisions of **R4.3.1-3** or **R4.3.2-4, Part R of the Guidance for the Survey and Construction of Steel Ships**, may be regarded as those on open deck and are to be treated as the exclusion from application of regulation II-2/7.5.3. *3: Where "either system" is installed, either one system is to be installed in one horizontal zone (the horizontal zone defined by interpretation of regulation II-2/9.2.2.3.2) without being mixed regulation II-2/7.5.3.1 with regulation II-2/7.5.3.2 in principle. *3: The effective automatic sprinkler system and smoke detection system are to be installed in the whole area of the

			atrium.		
	9.2.2.3.2 Note	Note: To be applied to ~~t~~**Table 9.1** to **9.2**, as appropriate. a Where adjacent spaces are in the same numerical category and superscript "a" appears, a bulkhead or deck between such spaces ***need not be fitted***[*21] if deemed unnecessary by the Administration. For example, in category (12) a bulkhead not be required between a galley and its annexed pantries provided the pantry bulkhead and decks maintain the integrity of the galley boundaries. A bulkhead is, however, required between a galley and machinery space even though both spaces are in category (12). b The ship's side, to the waterline in the lightest seagoing condition, superstructure and deckhouse sides situated below and adjacent to ***liferafts***[*22] and evacuation sides may be reduced to "*A-30*". c Where public toilets are installed completely within the stairway enclosure, the public toilet bulkhead within the stairway enclosure can be of "*B*" class integrity. d ***Where spaces of category (6), (7), (8) and (9) are located completely within the outer perimeter of the assembly station***[*23], the bulkheads of these spaces are allowed to be of "*B-0*" class integrity. Control positions for audio, video and light installations may be considered as part of the assembly station.	*21: If bulkheads or decks are installed in these spaces, these are to be of "*C*" class boundaries. *22: These are to include not only liferafts but also lifeboats. *23: If the perimeter is arranged at the inside (this arrangement is not permitted to Ro-Ro passenger ships), fire insulation value of boundaries of this perimeter may be lighter than the value of outside perimeter.		
	9.2.2.4.2 Note	Notes: To be applied to both **Tables 9.3** and **9.4**, as appropriate. a For clarification as to which applies, see paragraph **2.2.2** and **2.2.5**. b Where spaces are of the same numerical category and superscript *b* appears, ***a bulkhead or deck of the ratings shown in the table is only required when the adjacent spaces are for a different purpose***[*3], (e.g. in category (9)). A galley next to a galley does not require a bulkhead, but a galley next to a paint room requires an "*A*-0"	*3: If bulkheads and decks are installed in spite of being not required, these are to be of "*C*" class boundaries.		

		bulkhead. c ***Bulkheads separating the wheelhouse and chartroom from each other may have a "B-0" rating.***[*4] No fire rating is required for those partitions separating the navigation bridge and the safety centre when the latter is within the navigation bridge. d See paragraphs **2.2.4.2.3** and **2.2.4.2.4.** e For the application of Regulation **2.2.1.1.2**, "*B*-0" and "*C*", where appearing in **~~t~~Table 9.3**, shall be read as "*A*-0". f Fire insulation need not be fitted ***if the machinery space of category (7), in the opinion of the Administration, has little or no fire risk.***[*5] g Ships constructed before 1 July 2014 shall comply, as a minimum, with the previous requirements applicable at the time the ship was constructed, as specified in regulation **1.2**. * Where an asterisk appears in the tables, the division is required to be of steel or other equivalent material, but is not required to be of "*A*" class standard. However, where a deck, except in a category (10) space, is penetrated for the passage of electric cables, pipes and vent ducts, such penetrations should be made tight to prevent the passage of flame and smoke. Divisions between control stations (emergency generators) and open decks may have air intake openings without means for closure, unless a fixed gas fire-extinguishing system is fitted. For the application of paragraph **2.2.1.1.2**, an asterisk, where appearing in **~~t~~Table 9.4**, except for categories (8) and (10), shall be read as "*A*-0".	*4: A navigation locker that can only be accessed from the wheelhouse is to be considered as a control station, and Note c may be applied. *5: See the definitions of (10) of regulation **II-2/9.2.2.3.2**.		
	13.4.1.1	Where the space is below the bulkhead deck the two means of escape shall consist of either: .1 two sets of ***steel ladders***[*1] as widely separated as possible, leading to doors in the upper part of the space similarly separated and from which access is provided to the appropriate lifeboat and liferaft embarkation decks. One	*1: Ladders having strings of flexible steel wire ropes are not acceptable in such escape routes. *2: A "safe position" can be any space, excluding lockers and storerooms irrespective of their area, cargo spaces and		

		of these ladders shall be located within a protected enclosure that satisfies regulation **9.2.2.3**, category (2) or regulation **9.2.2.4**, category (4), as appropriate, from the lower part of the space it serves to a ***safe position***[*2] outside the space. Self-closing fire doors of the same fire integrity standards shall be fitted in the enclosure. The ladder shall be fixed in such a way that heat is not transferred into the enclosure through non-insulated fixing points. The ***protected enclosure***[*3, *4] shall have minimum internal dimensions of at least 800*mm* x 800*mm*, and shall have emergency lighting provisions; or .2 one steel ladder leading to a door in the upper part of the space from which access is provided to the embarkation deck and additionally, in the ***lower part of the space***[*5] and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the embarkation deck.	spaces where flammable liquids are stowed, but including special category spaces and ro-ro spaces, from which access is provided and maintained clear of obstacles to the embarkation decks. *3: Refer to **R13.4.1-10, Part R of the Guidance for the Survey and Construction of Steel Ships**. *4: Internal dimensions are to be interpreted as clear width, so that a passage having diameter of 800 *mm* is available throughout the vertical enclosure, as shown in the **Fig. R13.4.1-2**, clear of ship's structure, with insulation and equipment, if any. The ladder within the enclosure can be included in the internal dimensions of the enclosure. When protected enclosures include horizontal portions their clear width is not to be less than 600 *mm*. *5: Machinery spaces may include working platforms and passageways, or intermediate decks at more than one deck level. In such case, the lower part of the space is to be regarded as the lowest deck level, platform or passageway within the space. At deck levels, other than the lowest one, where only one means of escape other than the protected enclosure is provided, self-closing fire doors are to be fitted in the protected enclosure at that deck level. Smaller working platforms in-between deck levels, or only for access to equipment or components, need not be provided with two means of escape.		

Guidance for the Survey and Construction of Passenger Ships Annex 7-1 Table 7-1-B1

Correction	Present	Note
Table 7-1-B1 Interpretations of FSS Code		Reference correction

Table 7-1-B1 Interpretations of FSS Code

Number	*FSS* Code	Interpretations
FSS 4.3.1.1.1	Each powder or carbon dioxide extinguisher shall have a capacity of at least 5*kg* and each foam extinguishers shall have a capacity of at least 9*l*. The mass of all portable fire extinguishers shall not exceed 23*kg* and they shall have a fire-extinguishing ***capability at least equivalent**** to that of a 9*l* fluid extinguisher.	*: Fire extinguishers are to be in accordance with requirements of **R24.2.1, Part R of the Guidance for the Survey and Construction of Steel Ships**. The types and specific use of extinguishers are to be as given in **Table R10.3.2-~~2~~1, Part R of the Guidance for the Survey and Construction of Steel Ships.**
FSS 5.2.1.3.2	Means shall be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches, and other spaces in which personnel normally work or to which they have access. The audible alarms shall be located so as to be audible throughout the protected space with all machinery operating, and the alarms should be distinguished from other audible alarms by adjustment of sound pressure or sound patterns. The pre-discharge alarm shall be automatically activated (e.g., by opening of the release cabinet door). The alarm shall operate for the length of time needed to evacuate the space, but in no case less than 20 *s* before the medium is released. ***Conventional cargo spaces**** and small spaces (such as compressor rooms, paint lockers, etc.) with only a local release need not be provided with such an alarm.	*: Refer to **R25.2.1-7, Part R of the Guidance for the Survey and Construction of Steel Ships** for the definition of "conventional cargo spaces".
FSS 9.2.3.1.3	Heat detectors shall be certified to operate before the temperature exceeds 78℃ but not until the temperature exceeds 54℃, when the temperature is raised to those limits at a rate less than 1℃ per *min*, when tested according to standards *EN* 54:2001 and *IEC* 60092-504. Alternative testing standards may be used as determined by the Administration. At higher rates of temperature rise, the heat detector shall operate within ***temperature limits**** to the satisfaction of the Administration having regard to the avoidance of detector insensitivity or oversensitivity.	*: The "temperature limit" is to comply with **R29.2.3-1(3), Part R of the Guidance for the Surveys and Construction of Steel Ships** for constant temperature type spot detectors and compensation type spot detectors.

Guidance for the Survey and Construction of Passenger Ships Annex 7-2 1.1.2-1

Correction	Present	Note
1 In considering the design of stairway widths for each individual case which allow for the timely flow of persons evacuating to the muster stations from adjacent decks above and below, the following calculation method should be used (*see* **Fig. 7-2-1** and **Fig. 7-2-2**): when joining two decks: $W = (N1+N2)\times 10$ *mm*; when joining three decks: $W = (N1+N2 + 0.5\times N3)\times 10$ *mm*; when joining four decks: $W = (N1+N2 + 0.5\times N3 + 0.25\times N4)\times 10$ *mm*; when joining five or more decks the width of the stairways should be determined by applying the above formula for four decks to the deck under consideration and to the consecutive deck, where: W = the required tread width between handrails of the stairway. The calculated value of "W" may be reduced where available landing area "S" is provided in stairways at the deck level defined by subtracting "P" from "Z", such that: $P = S\times 3.0$ persons/m^2; $P_{\max} = 0.25\ Z$ where: Z = the total number of persons expected to be evacuated on the deck being considered; P = the number of persons taking temporary refuge on the stairway landing, which may be subtracted from "Z" to a maximum value of $P = 0.25\ Z$ (to be rounded down to the nearest whole number); S = the surface area (m^2) of the landing, minus the surface area necessary for the opening of doors	**1** In considering the design of stairway widths for each individual case which allow for the timely flow of persons evacuating to the muster stations from adjacent decks above and below, the following calculation method should be used (*see* **Fig. 7-2-1** and **7-2-2**): when joining two decks: $W = (N1+N2)\times 10$ *mm*; when joining three decks: $W = (N1+N2 + 0.5\times N3)\times 10$ *mm*; when joining four decks: $W = (N1+N2 + 0.5\times N3 + 0.25\times N4)\times 10$ *mm*; when joining five or more decks the width of the stairways should be determined by applying the above formula for four decks to the deck under consideration and to the consecutive deck, where: W = the required tread width between handrails of the stairway. The calculated value of "W" may be reduced where available landing area "S" is provided in stairways at the deck level defined by subtracting "P" from "Z", such that: $P = S\times 3.0$ persons/m^2; $P_{\max} = 0.25\ Z$ where: Z = the total number of persons expected to be evacuated on the deck being considered; P = the number of persons taking temporary refuge on the stairway landing, which may be subtracted from "Z" to a maximum value of $P = 0.25\ Z$ (to be rounded down to the nearest whole number); S = the surface area (m^2) of the landing, minus the surface area necessary for the opening of doors	Wording correction

	and minus the surface area necessary for accessing the flow on stairs (*see* **Fig.7-2-1**); *N* = the total number of persons expected to use the stairway from each consecutive deck under consideration; *N*1 is for the deck with the largest number of persons using that stairway; *N*2 is taken for the deck with the next highest number of persons directly entering the stairway flow such that when sizing the stairway width at each deck level, *N*1> *N*2> *N*3> *N*4 (*see* **Fig.7-2-2**). These decks are assumed to be on or upstream (i.e. away from the embarkation deck) of the deck being considered.	and minus the surface area necessary for accessing the flow on stairs (*see* **Fig.7-2-1**); *N* = the total number of persons expected to use the stairway from each consecutive deck under consideration; *N*1 is for the deck with the largest number of persons using that stairway; *N*2 is taken for the deck with the next highest number of persons directly entering the stairway flow such that when sizing the stairway width at each deck level, *N*1> *N*2> *N*3> *N*4 (*see* **Fig.7-2-2**). These decks are assumed to be on or upstream (i.e. away from the embarkation deck) of the deck being considered.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 1 Chapter 1 1.2.4

Correction	Present	Note
For ships for which surveys are to be carried out in accordance with "*HIDROVIA Parana - Paraguay*" as the "standards deemed appropriate by the Society" specified in **1.2.4-~~3~~4, Part ~~2~~1 of the Rules**, the notation of "*HIDROVIA*" is affixed to the Classification Characters.	For ships for which surveys are to be carried out in accordance with "***HIDROVIA Parana - Paraguay***" as the "standards deemed appropriate by the Society" specified in **1.2.4-3, Part 2 of the Rules**, the notation of "*HIDROVIA*" is affixed to the Classification Characters.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.1.4-1

Correction	Present	Note
1 At the surveys for fire extinguishing systems referred to in **2.1.4-1(8), Part 2 of the Rules**, the following examinations are to be carried out. Where it is impractical to carry out the examinations on board the ship, the examinations may be replaced with examinations carried out at the place of manufacture under the presence of the Surveyor. (1) Confirmation that the fire extinguishing system is installed according to the approved plans (2) Confirmation that a fire control plan is provided (3) For fire extinguishing systems, fire detecting systems and manually operated call points: (a) Fire main line including associated pumps Confirmation that each fire main pump can be operated so that one jet of water is produced from the highest positioned hydrant and a hydrant which imposes the most strict condition taking into account the distance from the fire pump, etc. and that the pressure at each hydrant is to be not less than the minimum pressure required by **8.2.1-6(1), Part 9 of the Rules**. (b) Fixed carbon dioxide fire extinguishing system i) For high pressure carbon dioxide fire-extinguishing systems: 1) Airtight tests of piping at the following	**1** At the surveys for fire extinguishing systems referred to in **2.1.4-1(8), Part 2 of the Rules**, the following examinations are to be carried out. Where it is impractical to carry out the examinations on board the ship, the examinations may be replaced with examinations carried out at the place of manufacture under the presence of the Surveyor. (1) Confirmation that the fire extinguishing system is installed according to the approved plans (2) Confirmation that a fire control plan is provided (3) For fire extinguishing systems, fire detecting systems and manually operated call points: (a) Fire main line including associated pumps Confirmation that each fire main pump can be operated so that one jet of water is produced from the highest positioned hydrant and a hydrant which imposes the most strict condition taking into account the distance from the fire pump, etc. and that the pressure at each hydrant is to be not less than the minimum pressure required by **8.2.1-6(1), Part 9 of the Rules**. (b) Fixed carbon dioxide fire extinguishing system i) For high pressure carbon dioxide fire-extinguishing systems: 1) Airtight tests of piping at the following	Reference correction

pressures: For starting line and lines between manifolds and selection valves: 3.5 *MPa* For lines between selection valves and open ends: 1.0 *MPa* 2) Testing piping by delivering air 3) Performance tests of alarm system ii) Test for vessels and their associated equipment are to be in accordance with the relevant requirements of **Part 7 of the Rules**, and additionally to comply with the following requirements: 1) Shop test The vessels are to be subjected to magnetic particle inspections for welded joints after completion of hydraulic tests, and then subjected to tightness tests at a pressure equal to the designed pressure together with their fitting. 2) On board test a) The pipes from the release valves on the distribution manifold to the nozzles are to be tested for tightness and the free flow of carbon dioxide gas (or air), after having been assembled on board. Test pressure is 1.0 *MPa*. b) The vessels are, after having been installed on board, to be subjected to operational tests with the charged condition of liquefied carbon dioxide gas to ensure no leakage of carbon dioxide gas and operations of the alarms, pressure gauges and liquid level indicators.	pressures: For starting line and lines between manifolds and selection valves: 3.5 *MPa* For lines between selection valves and open ends: 1.0 *MPa* 2) Testing piping by delivering air 3) Performance tests of alarm system ii) Test for vessels and their associated equipment are to be in accordance with the relevant requirements of **Part 7 of the Rules**, and additionally to comply with the following requirements: 1) Shop test The vessels are to be subjected to magnetic particle inspections for welded joints after completion of hydraulic tests, and then subjected to tightness tests at a pressure equal to the designed pressure together with their fitting. 2) On board test a) The pipes from the release valves on the distribution manifold to the nozzles are to be tested for tightness and the free flow of carbon dioxide gas (or air), after having been assembled on board. Test pressure is 1.0 *MPa*. b) The vessels are, after having been installed on board, to be subjected to operational tests with the charged condition of liquefied carbon dioxide gas to ensure no leakage of carbon dioxide gas and operations of the alarms, pressure gauges and liquid level indicators.	

c) The refrigerating plants are, after having been installed on board, to be subjected to an operational test with the charged condition of liquefied carbon dioxide gas including the pressure control function test. (c) Fixed high-expansion foam fire extinguishing systems i) Testing piping by delivering water ii) Performance tests of the system by delivering foam (the tests may be replaced with other equivalent tests at the discretion of the Surveyor) iii) Tests specified in **26.3.5, Part R of the Rules for the Survey and Construction of Steel Ships**, where deemed necessary by the Society. (d) Fixed pressure water-spraying fire extinguishing system i) A pressure test for ordinarily pressurized parts of the system with a pressure 1.5 *times* the working pressure ii) A performance test by spraying water iii) Operation tests of relevant pumps (e) Fixed water spray system Confirmation of the water delivered by the remotest spray nozzle by way of performance test (f) Fire detecting system i) 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 **5.1.1-1, Part 9 of the Rules**, refer to the test procedures shown in **Annex ~~B2~~2.1.4~~-2(3)(i)i),~~, Part B**	c) The refrigerating plants are, after having been installed on board, to be subjected to an operational test with the charged condition of liquefied carbon dioxide gas including the pressure control function test. (c) Fixed high-expansion foam fire extinguishing systems i) Testing piping by delivering water ii) Performance tests of the system by delivering foam (the tests may be replaced with other equivalent tests at the discretion of the Surveyor) iii) Tests specified in **26.3.5, Part R of the Rules for the Survey and Construction of Steel Ships**, where deemed necessary by the Society. (d) Fixed pressure water-spraying fire extinguishing system i) A pressure test for ordinarily pressurized parts of the system with a pressure 1.5 *times* the working pressure ii) A performance test by spraying water iii) Operation tests of relevant pumps (e) Fixed water spray system Confirmation of the water delivered by the remotest spray nozzle by way of performance test (f) Fire detecting system i) 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 **5.1.1-1, Part 9 of the Rules**, refer to the test procedures shown in **Annex B2.1.4-2(3)(i)i), Part B of**	

of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships) ii) A performance test of the alarm system under loss of power or fault condition (g) Manually operated call points An operation test (4) Inert gas systems (a) Function test of equipment and control, safety, and alarm devices (b) Airtight test The airtight test pressure for pipes and joints in the inert gas supply line is, in principle, to be 0.024 *MPa*. However, where the set pressure of the pressure/vacuum valve is 0.024 *MPa* or more, the set pressure of the pressure/vacuum valve is to be used. (c) Capacity test of inert gas blowers It is to be verified through the use of inert gas or fresh air that the capacity of the inert gas blower is equal to or greater than 1.25 *times* the maximum design discharge capacity of the ship. Where fresh air is used in the test, it is to be taken in from the area in proximity to the flue gas isolating valve. However, when a ship including its inert gas system is of the same design as a ship which has already been tested, this test may be omitted.	**the Guidance for the Survey and Construction of Steel Ships**) ii) A performance test of the alarm system under loss of power or fault condition (g) Manually operated call points An operation test (4) Inert gas systems (a) Function test of equipment and control, safety, and alarm devices (b) Airtight test The airtight test pressure for pipes and joints in the inert gas supply line is, in principle, to be 0.024 *MPa*. However, where the set pressure of the pressure/vacuum valve is 0.024 *MPa* or more, the set pressure of the pressure/vacuum valve is to be used. (c) Capacity test of inert gas blowers It is to be verified through the use of inert gas or fresh air that the capacity of the inert gas blower is equal to or greater than 1.25 *times* the maximum design discharge capacity of the ship. Where fresh air is used in the test, it is to be taken in from the area in proximity to the flue gas isolating valve. However, when a ship including its inert gas system is of the same design as a ship which has already been tested, this test may be omitted.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.3.2-2

Correction	Present	Note
2 Annex ~~B2~~2.3.2~~-2~~, Part B of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships gives the standard method for inclining tests stipulated in **-1** above.	**2 Annex B2.3.2-2, Part B of the Guidance for the Survey and Construction of Steel Ships** gives the standard method for inclining tests stipulated in **-1** above.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.3.2-3

Correction	Present	Note
3 Among the particulars of stability stated in **2.3.2-1, Part 2 of the Rules**, the rolling period is to be determined by the oscillation test. However, upon special approval by the Society, the oscillation test may be dispensed with and the rolling period may be determined by an approximate calculation stipulated in **~~2~~U2.3.1-1(2), Part U of the Guidance for the Survey and Construction of Steel Ships**.	**3** Among the particulars of stability stated in **2.3.2-1, Part 2 of the Rules**, the rolling period is to be determined by the oscillation test. However, upon special approval by the Society, the oscillation test may be dispensed with and the rolling period may be determined by an approximate calculation stipulated in **2.3.1-1(2), Part U of the Guidance for the Survey and Construction of Steel Ships**.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 8 8.1.2-2

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

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.3-4

Correction	Present	Note
4 Approval of PMS Conditions for approval of PMS are as follows: (1) Machinery maintenance scheme The machinery maintenance scheme for PMS is to specify maintenance works such as overhaul inspection, replacement of parts and general inspection with their time schedule and/or running hours for each item of machinery and equipment including their parts. The scheme is to be prepared based on the inspection and maintenance intervals recommended by the manufacturers of the machinery and equipment with input from the	**4** Approval of PMS Conditions for approval of PMS are as follows: (1) Machinery maintenance scheme The machinery maintenance scheme for PMS is to specify maintenance works such as overhaul inspection, replacement of parts and general inspection with their time schedule and/or running hours for each item of machinery and equipment including their parts. The scheme is to be prepared based on the inspection and maintenance intervals recommended by the manufacturers of the machinery and equipment with input from the	Reference correction

experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 6 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (2) Survey Schedule Table Survey intervals of the survey items are not to exceed those specified in the machinery maintenance scheme. The following items are to be generally opened and examined in the presence of the Surveyor. (a) Reduction gears for main propulsion (b) Flexible couplings for main propulsion (c) Other items deemed necessary by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (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) Date of maintenance work (b) Signature by the Chief Engineer (c) Details of maintenance work and results (d) Total running hours (parts replacement intervals and overhaul intervals) (e) Names of parts replaced (f) Measuring data (including original design	experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 6 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (2) Survey Schedule Table Survey intervals of the survey items are not to exceed those specified in the machinery maintenance scheme. The following items are to be generally opened and examined in the presence of the Surveyor. (a) Reduction gears for main propulsion (b) Flexible couplings for main propulsion (c) Other items deemed necessary by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (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) Date of maintenance work (b) Signature by the Chief Engineer (c) Details of maintenance work and results (d) Total running hours (parts replacement intervals and overhaul intervals) (e) Names of parts replaced (f) Measuring data (including original design	

dimensions and allowable tolerance) (g) The condition of damage and repair method (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 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) Chief Engineer The Chief Engineer in charge of PMS is to be a person designated by the shipowner or ship management company. (5) Computer Computers used for maintenance management system are to satisfy the following requirements specified in **(a)** through **(f)**: (a) Computers are to be configured so that the effects of a system failure in part of the circuits or devices can be limited to a certain range as far as possible. (b) Each system component is to be protected against overvoltages (electrical noise) likely to enter through input/output terminals. (c) Central processing units and important peripheral devices are to have a self-monitoring function. (d) Important programmes and data are not to be deleted in the event of a temporary failure of the external source of power supply. (e) Spare parts for important system components that require specialist services for repairs are to be supplied in readily replaceable part units.	dimensions and allowable tolerance) (g) The condition of damage and repair method (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 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) Chief Engineer The Chief Engineer in charge of PMS is to be a person designated by the shipowner or ship management company. (5) Computer Computers used for maintenance management system are to satisfy the following requirements specified in **(a)** through **(f)**: (a) Computers are to be configured so that the effects of a system failure in part of the circuits or devices can be limited to a certain range as far as possible. (b) Each system component is to be protected against overvoltages (electrical noise) likely to enter through input/output terminals. (c) Central processing units and important peripheral devices are to have a self-monitoring function. (d) Important programmes and data are not to be deleted in the event of a temporary failure of the external source of power supply. (e) Spare parts for important system components that require specialist services for repairs are to be supplied in readily replaceable part units.	

(f) It is recommended that the software is approved in accordance with **Annex ~~B9~~9.1.3~~-4~~ ~~“PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE”~~, Part B of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships**.	(f) It is recommended that the software is approved in accordance with **Annex B9.1.3-4 “PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE”, Part B of the Guidance for the Survey and Construction of Steel Ships**.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.4-5

Correction	Present	Note
5 Approval of CBM Conditions for approval of CBM are as follows: (1) Machinery maintenance scheme for CBM The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following **(a)** to **(d)**. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (a) The functions of the condition monitoring system (b) Procedures related to condition monitoring and diagnosis (c) Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society) (d) Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly (2) Condition monitoring system The condition monitoring system is to satisfy the following requirements specified in **(a)** to **(h)**. In cases where this system is modified, that modification	**5** Approval of CBM Conditions for approval of CBM are as follows: (1) Machinery maintenance scheme for CBM The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following **(a)** to **(d)**. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. (a) The functions of the condition monitoring system (b) Procedures related to condition monitoring and diagnosis (c) Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society) (d) Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly (2) Condition monitoring system The condition monitoring system is to satisfy the following requirements specified in **(a)** to **(h)**. In cases where this system is modified, that modification	Reference correction

is to be approved by the Society. (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in **18.7.1, Part D of the Rules for the Survey and Construction of Steel Ships**. (b) The hardware and software of the computer is to comply with **9.1.3-4(5)(a**~~) to (e) and **Chapters 1, 2 and**~~**) to (e)** and **Chapter 1, 2** and **3, Part X of the Rules for the Survey and Construction of Steel Ships**. (c) In addition to **(b)**, the software is to have condition monitoring function specified in **Annex ~~B9~~9.1.3~~-4 “Procedures for approval of PMS/CBM management software”~~, Part B of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships** and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in **(a)**. The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends. (d) The condition monitoring system is to produce condition monitoring records. (e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system. (f) In cases where remote condition monitoring and	is to be approved by the Society. (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in **18.7.1, Part D of the Rules for the Survey and Construction of Steel Ships**. (b) The hardware and software of the computer is to comply with **9.1.3-4(5)(a)** to **(e)** and **Chapters 1, 2 and 3, Part X of the Rules for the Survey and Construction of Steel Ships**. (c) In addition to **(b)**, the software is to have condition monitoring function specified in **Annex B9.1.3-4 “Procedures for approval of PMS/CBM management software”, Part B of the Guidance for the Survey and Construction of Steel Ships** and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in **(a)**. The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends. (d) The condition monitoring system is to produce condition monitoring records. (e) In cases where condition monitoring and diagnosis are conducted on board ships, the	

diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in **(a)**. Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in the event of loss of the communication function and transfer the data after the communication function is restored. (g) In cases where limiting parameters are modified, such modifications are to be identified. (h) The condition monitoring system is to include a method for backing up data at regular intervals. (3) Maintenance management system The maintenance management system is to have the maintenance records function specified in **Annex ~~B9~~9.1.3~~-4 "Procedures for approval of PMS/CBM management software"~~, Part B of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships**. This function may be incorporated into the condition monitoring system specified in **(2)**. (4) Survey Schedule Table Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and	condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system. (f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in **(a)**. Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in the event of loss of the communication function and transfer the data after the communication function is restored. (g) In cases where limiting parameters are modified, such modifications are to be identified. (h) The condition monitoring system is to include a method for backing up data at regular intervals. (3) Maintenance management system The maintenance management system is to have the maintenance records function specified in **Annex B9.1.3-4 "Procedures for approval of PMS/CBM management software", Part B of the Guidance for the Survey and Construction of Steel Ships**. This function may be incorporated into the condition monitoring system specified in **(2)**. (4) Survey Schedule Table Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated	

apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (5) Condition monitoring record Condition monitoring records are to include at least the following items. (a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in **-6(2)** and relevant maintenance data. (b) Signature of the chief engineer. (c) Contents and results of condition monitoring and diagnosis (including criteria for judgment). (6) Machinery maintenance record The machinery maintenance records are to include the items specified in **9.1.3-4(3)** for the machinery, equipment or associated components subject to the scheme. Those records are to be created by the chief engineer and always to be available on board the ship. (7) Chief engineer and other ship personnel The machinery maintenance scheme for CBM is to be implemented by a chief engineer designated by the shipowner or ship management company. Access to the condition monitoring system and maintenance management system is to be permitted only to the chief engineer and other ship personnel who are designated by the shipowner or ship management company.	components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval. (5) Condition monitoring record Condition monitoring records are to include at least the following items. (a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in **-6(2)** and relevant maintenance data. (b) Signature of the chief engineer. (c) Contents and results of condition monitoring and diagnosis (including criteria for judgment). (6) Machinery maintenance record The machinery maintenance records are to include the items specified in **9.1.3-4(3)** for the machinery, equipment or associated components subject to the scheme. Those records are to be created by the chief engineer and always to be available on board the ship. (7) Chief engineer and other ship personnel The machinery maintenance scheme for CBM is to be implemented by a chief engineer designated by the shipowner or ship management company. Access to the condition monitoring system and maintenance management system is to be permitted only to the chief engineer and other ship personnel who are designated by the shipowner or ship management company.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.4-6

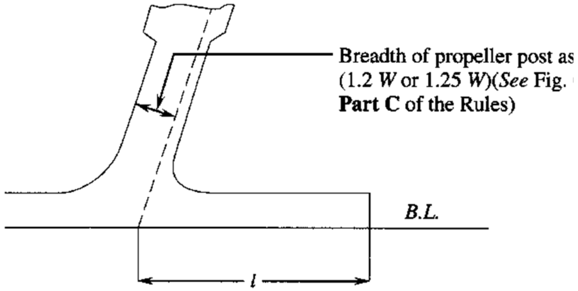
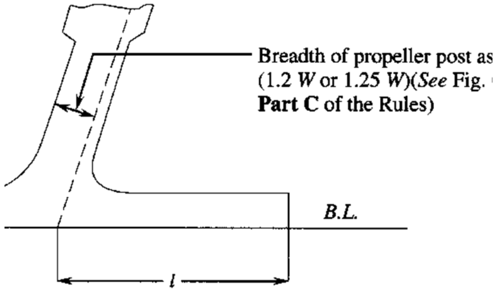
Correction	Present	Note
6 Surveys of CBM (1) Installation survey It is to be confirmed in the presence of the Surveyor that the equipment necessary for condition monitoring and diagnosis, e.g. sensors, are installed and available in accordance with the machinery maintenance scheme for CBM. In addition, a set of baseline readings is to be taken. (2) Implementation survey An implementation survey is to be carried out no earlier than 6 months after the installation survey and no later than the first periodical survey (i.e. the Annual Survey, Intermediate Survey or Special Survey specified in **1.1.2-2, Part 2 of the Rules**). At the implementation survey the following **(a)** to **(f)** are to be verified. At this implementation survey, a report which specifies the implementation status of these items is to be submitted to the Society. The baseline data are to be approved by the Society prior to the implementation survey (a) Baseline data are incorporated in the condition monitoring system. (b) Condition monitoring and maintenance are conducted in accordance with the machinery maintenance scheme for CBM (including a comparison of condition monitoring results to the baseline data). (c) Condition monitoring records and machinery maintenance records are available on board the ship and the contents of said records are sufficient as an alternative to the open-up surveys specified in **Table 2.9.1, Part 2**~~, Chapter 9~~ **of the Rules**.	**6** Surveys of CBM (1) Installation survey It is to be confirmed in the presence of the Surveyor that the equipment necessary for condition monitoring and diagnosis, e.g. sensors, are installed and available in accordance with the machinery maintenance scheme for CBM. In addition, a set of baseline readings is to be taken. (2) Implementation survey An implementation survey is to be carried out no earlier than 6 months after the installation survey and no later than the first periodical survey (i.e. the Annual Survey, Intermediate Survey or Special Survey specified in **1.1.2-2, Part 2 of the Rules**). At the implementation survey the following **(a)** to **(f)** are to be verified. At this implementation survey, a report which specifies the implementation status of these items is to be submitted to the Society. The baseline data are to be approved by the Society prior to the implementation survey (a) Baseline data are incorporated in the condition monitoring system. (b) Condition monitoring and maintenance are conducted in accordance with the machinery maintenance scheme for CBM (including a comparison of condition monitoring results to the baseline data). (c) Condition monitoring records and machinery maintenance records are available on board the ship and the contents of said records are sufficient as an alternative to the open-up surveys specified in **Table 2.9.1, Part 2, Chapter 9 of the Rules**.	Wording correction

(d) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM. (e) Records of any limiting parameters that have been modified. (f) In cases where there is any failure on machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken to address said failure. (3) Annual survey An annual survey is to be carried out to verify that the scheme is being correctly operated and maintenance of machinery, equipment or associated components whose condition monitoring and diagnosis results were abnormal since the last survey has been carried out. At the annual survey the following **(a)** to **(g)** are to be verified. In cases where it is deemed necessary by the Surveyor (in consideration of the results of this verification) open-up examinations, function tests, confirmatory tests and readings of condition monitoring parameters may be required as far as practicable. In addition, condition monitoring records and maintenance records are to be available onboard ships. (a) The results of condition monitoring and diagnosis (including confirmation of maintenance records and general inspections) of machinery, equipment and associated components subject to the scheme are good. (b) Condition monitoring systems and maintenance management systems work effectively and are in good condition. (c) Records of any limiting parameters that have	(d) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM. (e) Records of any limiting parameters that have been modified. (f) In cases where there is any failure on machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken to address said failure. (3) Annual survey An annual survey is to be carried out to verify that the scheme is being correctly operated and maintenance of machinery, equipment or associated components whose condition monitoring and diagnosis results were abnormal since the last survey has been carried out. At the annual survey the following **(a)** to **(g)** are to be verified. In cases where it is deemed necessary by the Surveyor (in consideration of the results of this verification) open-up examinations, function tests, confirmatory tests and readings of condition monitoring parameters may be required as far as practicable. In addition, condition monitoring records and maintenance records are to be available onboard ships. (a) The results of condition monitoring and diagnosis (including confirmation of maintenance records and general inspections) of machinery, equipment and associated components subject to the scheme are good. (b) Condition monitoring systems and maintenance management systems work effectively and are in good condition. (c) Records of any limiting parameters that have	

been modified since the last survey (d) Written details of breakdowns or malfunctions (e) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM. (f) In cases where there is a failure of machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken based to address said failure. (g) The following documents are available on board ships i) Documents specified in **-4(1)** and **(2)** ii) Maintenance instructions issued by manufacturers or shipyards iii) Condition monitoring records and initial obtained baseline data specified in **-5(5)** iv) Machinery maintenance records specified in **-5(6)** v) Reference documents (trend investigation procedures, etc.) vi) Records of changes to software systems and parameters vii) Sensors calibration records / certification / status (4) Occasional Survey Any damage to machinery, equipment or associated components subject to the scheme or any abnormality observed by the condition monitoring and diagnosis is to be reported to the Society immediately according to an approved machinery maintenance scheme for CBM. Upon review of the reports, the Society may request an occasional survey if necessary. Any machinery part that is damaged and subsequently	been modified since the last survey (d) Written details of breakdowns or malfunctions (e) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM. (f) In cases where there is a failure of machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken based to address said failure. (g) The following documents are available on board ships i) Documents specified in **-4(1)** and **(2)** ii) Maintenance instructions issued by manufacturers or shipyards iii) Condition monitoring records and initial obtained baseline data specified in **-5(5)** iv) Machinery maintenance records specified in **-5(6)** v) Reference documents (trend investigation procedures, etc.) vi) Records of changes to software systems and parameters vii) Sensors calibration records / certification / status (4) Occasional Survey Any damage to machinery, equipment or associated components subject to the scheme or any abnormality observed by the condition monitoring and diagnosis is to be reported to the Society immediately according to an approved machinery maintenance scheme for CBM. Upon review of the reports, the Society may request an occasional survey if necessary. Any machinery part that is damaged and subsequently	

replaced by a spare part is to be retained on board where possible until examined by the Surveyor.	replaced by a spare part is to be retained on board where possible until examined by the Surveyor.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 4 Chapter 4 Fig. 4.2.2.4-1

Correction	Present	Note
Fig. 4.2.2.4-1  Breadth of propeller post as per Rules (1.2W or 1.25W) (*See* **Fig.4.2.5~~ of~~, Part 4 the Rules**)	Fig. 4.2.2.4-1  Breadth of propeller post as per Rules (1.2W or 1.25W) (*See* **Fig.4.2.5 of the Rules**)	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 1 Table 7.1.1.5-1

Correction	Present	Note
Table 7.1.1.5-1 Kinds of Auxiliaries		Reference correction

Kind of auxiliary		Auxiliary machinery items
Auxiliary Machinery essential for main propulsion	Auxiliary machinery for cooling systems	Jacket cooling water pumps, Piston cooling water (oil) pumps, Fuel valve cooling water (oil) pumps, Turbocharger cooling water pumps, Circulating water pumps, Cooler cooling water pumps, Generator engine cooling water (oil) pumps, Air compressors cooling water pumps
	Auxiliary machinery for feed water, condensate and draining systems	Boiler water circulating pumps, Condensate pumps, Exhaust gas economizer feed pumps, Drain pumps, Feed water pumps
	Auxiliary machinery for fuel oil systems	F.O. supply (service) pumps, F.O. transfer pumps, Boiler burning pumps, F.O. purifiers
	Auxiliary machinery for lubricating oil systems	Cam shaft L.O. pumps, Turbocharger L.O. pumps, Crosshead L.O. pumps, Reduction gear L.O. pumps, Stern tube L.O. pumps (not applicable for gravitational circulation systems), L.O. purifiers

	Auxiliary machinery for hydraulic systems	Hydraulic oil pumps (pumps to supply hydraulic oil to hydraulic circuits for driving or controlling equipment relevant to main propulsion, e.g., controllable pitch propeller oil pumps)
	Other auxiliary machinery	Boiler draught fans, Air compressors (excluding air compressors for emergency use), Distilling plants (when distillate is used for essential boilers), Others as deemed essential by the Society.
Auxiliary machinery for manoeuvring and safety	Pumps	Bilge pumps (including pumps for oil-water separators*), Ballast pumps, Fire pumps*
	Steering-related auxiliary machinery	Steering engines, Side thrusters*, Stabilizers
	Deck machinery	Windlasses, Mooring winches*, Hydraulic pumps used for windlasses, Hydraulic pumps used for mooring winches*
	Ventilating fans, blowers, etc.	Ventilating fans (installed in hazardous areas due to flammable gases or gases harmful to the health of personnel in engine room*, boiler room*) Others as deemed essential by the Society.
Auxiliary machinery for cargo handling	Cargo handling machinery and gear	Hydraulic pumps used for Cargo handling appliances (items subject to “Rules for the Survey and Construction of Cargo Handling Appliances of Ships”), Hoisting machinery, Operating equipment
	Other auxiliary machinery	Others as deemed essential by the Society
Auxiliary machinery for specific use	Cargo handling equipment for specific Use	Unloaders (Shipborne units), Refrigerating machines for heat insulated containers, etc.
	Public working equipment	Dredging equipment, Drilling machines, Pile-driving equipment, etc.
	Fishing equipment	Winches, etc.
	Marine-products processing equipment	Canning/packing equipment, Conveyors, Ice-making machines, etc.
	Equipment for specific operations	Equipment specifically designated by the Society

Remarks:

For those items of auxiliary machinery marked by an asterisk, *see* ~~7.~~**1.1.4(4)**

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.1-2

Correction	Present	Note
2 In cases where the diameter of crankpins or journals is less than the required diameter d_c given in **2.3.1-1, Part 7 of the Rules**, consideration will be given in each case on the basis of the stress levels in fillets, the torsional stress levels in crankpins and journals and the material of the crankshaft. In this connection, the stress levels in fillets are to be in accordance with the following **(1)** or **(2)**: (1) In cases where the torsional stress in crankpins and journals are evaluated without carrying out a forced vibration calculation including the stern shaftings: The diameter may be acceptable where the value of equivalent stress amplitude σ_e calculated by the **Annex ~~D2~~2.3.1~~-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I",~~ of Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships** is not more than the allowable stress σ obtained from the formula below with the coefficient shown in **Table 7.2.3.1-2.** $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha$ (N/mm^2) However, where deemed appropriate by the Society, the diameter in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatment and the resultant stress distribution may be acceptable. (2) In cases where the torsional stress in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings: The diameter may be acceptable where the value of the acceptability factor Q calculated by the **Annex ~~D2~~2.3.1~~-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II",~~ of Part D of the ~~Guidance~~Rules for the Survey and Construction of**	**2** In cases where the diameter of crankpins or journals is less than the required diameter d_c given in **2.3.1-1, Part 7 of the Rules**, consideration will be given in each case on the basis of the stress levels in fillets, the torsional stress levels in crankpins and journals and the material of the crankshaft. In this connection, the stress levels in fillets are to be in accordance with the following **(1)** or **(2)**: (1) In cases where the torsional stress in crankpins and journals are evaluated without carrying out a forced vibration calculation including the stern shaftings: The diameter may be acceptable where the value of equivalent stress amplitude σ_e calculated by the **Annex D2.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the Guidance for the Survey and Construction of Steel Ships** is not more than the allowable stress σ obtained from the formula below with the coefficient shown in **Table 7.2.3.1-2.** $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha$ (N/mm^2) appropriate However, where deemed by the Society, the diameter in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatment and the resultant stress distribution may be acceptable. (2) In cases where the torsional stress in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings: The diameter may be acceptable where the value of the acceptability factor Q calculated by the **Annex D2.3.1-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II", Part D of the Guidance for the Survey and Construction of Steel**	Reference correction

Steel Ships complies with the following formula: $Q \geq 1.15$	**Ships** complies with the following formula: $Q \geq 1.15$	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.1-3

Correction	Present	Note
3 In cases where the dimensions of crankwebs fail to meet the requirements specified in **2.3.1-2(1)** or **(2), Part 7 of the Rules**, consideration will be given in accordance with the following: (1) The dimensions of the crankwebs may be acceptable in cases where the actual diameters of crankpins and journals are not less than the required diameter d_c calculated by **2.3.1-1, Part 7 of the Rules** by replacing M and T with those specified below. In this case, the dimensions are to be within the following ranges; $0 \leq q/r \leq 1,\ -0.3 \leq h/d \leq 0.4, 8 \leq d/r \leq 27$ $1.1 \leq b/d \leq 2.1, 0.2 \leq t/d \leq 0.56$ $M = 10^{-2}AP_{\max}L\alpha_{KB}/5$ $T = 10^{-2}BP_{mi}S\alpha_{KT}/1.8$ Where: α_{KB}: Stress concentration factor for bending, as specified below; $\alpha_{KB} = 4.84f_1f_2f_3f_4f_5$ $f_1 = 0.420 + 0.160\sqrt{d/r - 6.864}$ $f_2 = 1 + 81\left\{0.769 - \left(0.407 - \frac{h}{d}\right)^2\right\}\left(\frac{q}{r}\right)\left(\frac{r}{d}\right)^2$ $f_3 = 0.285\left(2.2 - \frac{b}{d}\right)^2 + 0.785$	**3** In cases where the dimensions of crankwebs fail to meet the requirements specified in **2.3.1-2(1)** or **(2), Part 7 of the Rules**, consideration will be given in accordance with the following: (1) The dimensions of the crankwebs may be acceptable in cases where the actual diameters of crankpins and journals are not less than the required diameter d_c calculated by **2.3.1-1, Part 7 of the Rules** by replacing M and T with those specified below. In this case, the dimensions are to be within the following ranges; $0 \leq q/r \leq 1,\ -0.3 \leq h/d \leq 0.4, 8 \leq d/r \leq 27$ $1.1 \leq b/d \leq 2.1, 0.2 \leq t/d \leq 0.56$ $M = 10^{-2}AP_{\max}L\alpha_{KB}/5$ $T = 10^{-2}BP_{mi}S\alpha_{KT}/1.8$ Where: α_{KB}: Stress concentration factor for bending, as specified below; $\alpha_{KB} = 4.84f_1f_2f_3f_4f_5$ $f_1 = 0.420 + 0.160\sqrt{d/r - 6.864}$ $f_2 = 1 + 81\left\{0.769 - \left(0.407 - \frac{h}{d}\right)^2\right\}\left(\frac{q}{r}\right)\left(\frac{r}{d}\right)^2$ $f_3 = 0.285\left(2.2 - \frac{b}{d}\right)^2 + 0.785$	Reference correction

$f_4 = 0.444\left(\frac{d}{t}\right)^{1.4}$ $f_5 = 1 - \left\{\left(\frac{h}{d} + 0.1\right)^2 / \left(4\frac{t}{d} - 0.7\right)\right\}$ $\cdots (t/d \geq 0.36)$ $f_5 = 1 - 1.35\left(\frac{h}{d} + 0.1\right)^2$ $\cdots (t/d < 0.36 \text{ and } h/d > -0.1)$ f_5=1 $\cdots (t/d < 0.36 \text{ and } h/d \leq -0.1)$ α_{KT}: Stress concentration factor for torsion, as specified below; $\alpha_{KT} = 1.75 g_1 g_2 g_3$ $g_1 = 31.6(0.152 - r/d)^2 + 0.67$ $g_2 = 1.04 + 0.317h/d$ $g_3 = 1.31 - 0.233b/d$ d: actual diameter of crankpin or journal (*mm*) r: radius in fillet (*mm*) q: recess (*mm*) h: overlap between crankpin and journal (*mm*) $h = \frac{1}{2}\left(d_p + d_j - S\right)$ (*mm*) Other symbols are the same as those used in **2.3.1, Part 7 of the Rules**. (2) In cases where the dimensions of the crankwebs fail to meet the requirements even after applying **(1)** above, the acceptance criteria specified in **(a)** or **(b)** below may be used: (a) In cases where the torsional stresses in crankpins and journals are evaluated without carrying out a	$f_4 = 0.444\left(\frac{d}{t}\right)^{1.4}$ $f_5 = 1 - \left\{\left(\frac{h}{d} + 0.1\right)^2 / \left(4\frac{t}{d} - 0.7\right)\right\}$ $\cdots (t/d \geq 0.36)$ $f_5 = 1 - 1.35\left(\frac{h}{d} + 0.1\right)^2$ $\cdots (t/d < 0.36 \text{ and } h/d > -0.1)$ f_5=1 $\cdots (t/d < 0.36 \text{ and } h/d \leq -0.1)$ α_{KT}: Stress concentration factor for torsion, as specified below; $\alpha_{KT} = 1.75 g_1 g_2 g_3$ $g_1 = 31.6(0.152 - r/d)^2 + 0.67$ $g_2 = 1.04 + 0.317h/d$ $g_3 = 1.31 - 0.233b/d$ d: actual diameter of crankpin or journal (*mm*) r: radius in fillet (*mm*) q: recess (*mm*) h: overlap between crankpin and journal (*mm*) $h = \frac{1}{2}\left(d_p + d_j - S\right)$ (*mm*) Other symbols are the same as those used in **2.3.1, Part 7 of the Rules**. (2) In cases where the dimensions of the crankwebs fail to meet the requirements even after applying **(1)** above, the acceptance criteria specified in **(a)** or **(b)** below may be used: (a) In cases where the torsional stresses in crankpins and journals are evaluated without carrying out a	

forced vibration calculation including the stern shaftings: The dimensions may be acceptable in cases where the value of the equivalent stress amplitude σ_e calculated by the **Annex ~~D2~~2.3.1-~~2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I"~~, Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships** is not more than the allowable stress σ obtained from the formula below with the coefficient shown in **Table 7.2.3.1-2.** $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha\ (N/mm^2)$ However, where deemed appropriate by the Society, the dimensions in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatments and the resultant stress distribution may be acceptable. (b) In cases where the torsional stresses in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings: The dimensions may be acceptable where the value of the acceptability factor Q calculated by the **Annex ~~D2~~2.3.1~~-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II"~~, Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships** complies with the following formula: $Q \geq 1.15$	forced vibration calculation including the stern shaftings: The dimensions may be acceptable in cases where the value of the equivalent stress amplitude σ_e calculated by the **Annex D2.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the Guidance for the Survey and Construction of Steel Ships** is not more than the allowable stress σ obtained from the formula below with the coefficient shown in **Table 7.2.3.1-2.** $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha\ (N/mm^2)$ However, where deemed appropriate by the Society, the dimensions in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatments and the resultant stress distribution may be acceptable. (b) In cases where the torsional stresses in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings: The dimensions may be acceptable where the value of the acceptability factor Q calculated by the **Annex D2.3.1-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II", Part D of the Guidance for the Survey and Construction of Steel Ships** complies with the following formula: $Q \geq 1.15$	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.2-1

Correction	Present	Note
1 The wording "maximum torque at the shrinkage fit" in **2.3.2-1(2), Part 7 of the Rules** means, in principle, $M_{T\max}$ shown in **1.3.2-1 of the Annex ~~D2~~2.3.1~~-2(2) "GUIDANCE FOR CALCULATON OF CRANKSHAFT STRESS II"~~, Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships**.	**1** The wording "maximum torque at the shrinkage fit" in **2.3.2-1(2), Part 7 of the Rules** means, in principle, $M_{T\max}$ shown in **1.3.2-1 of the Annex D2.3.1-2(2) "GUIDANCE FOR CALCULATON OF CRANKSHAFT STRESS II", Part D of the Guidance for the Survey and Construction of Steel Ships**.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.2-2

Correction	Present	Note
2 In cases where the dimensions of crankwebs fail to meet the requirements in **2.3.2-2(1), Part 7 of the Rules**, they may be acceptable provided that either the following **(1)** or **(2)** is satisfied. (1) In cases where the maximum torque at the shrinkage fit is evaluated without carrying out a forced vibration calculation including the stern shaftings: $d_h^2 t P_m \geq CTD^2$ Where: C: 103 for 2-stroke cycle in-line engines 165 for 4-stroke cycle in-line engines P_m: Surface pressure at shrinkage fit, as given by the following formula $P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$ $K = 0.9\sqrt{\frac{206\alpha}{Y} + 0.25}$ Other symbols are the same as those used in **2.3, Part 7 of the Rules**. (2) In cases where the maximum torque at the shrinkage	**2** In cases where the dimensions of crankwebs fail to meet the requirements in **2.3.2-2(1), Part 7 of the Rules**, they may be acceptable provided that either the following **(1)** or **(2)** is satisfied. (1) In cases where the maximum torque at the shrinkage fit is evaluated without carrying out a forced vibration calculation including the stern shaftings: $d_h^2 t P_m \geq CTD^2$ Where: C: 103 for 2-stroke cycle in-line engines 165 for 4-stroke cycle in-line engines P_m: Surface pressure at shrinkage fit, as given by the following formula $P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$ $K = 0.9\sqrt{\frac{206\alpha}{Y} + 0.25}$ Other symbols are the same as those used in **2.3, Part 7 of the Rules**. (2) In cases where the maximum torque at the shrinkage	Reference correction

fit is evaluated by carrying out a forced vibration calculation including the stern shaftings: $\alpha \geq \frac{4 \times 10^3 S_R M_{T\max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) (1 - R^2)}$ Where: $M_{T\max}$: Maximum torque at shrinkage fit, as shown in **1.3.2-1 of the Annex ~~D2~~2.3.1-~~2(2) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II”~~, Part D of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships** (*N-m*) E: Modulus of longitudinal elasticity (*N/mm*^{2}) Other symbols are the same as those used in **2.3, Part 7 of the Rules**.	fit is evaluated by carrying out a forced vibration calculation including the stern shaftings: $\alpha \geq \frac{4 \times 10^3 S_R M_{T\max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) (1 - R^2)}$ Where: $M_{T\max}$: Maximum torque at shrinkage fit, as shown in **1.3.2-1 of the Annex D2.3.1-2(2) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II”, Part D of the Guidance for the Survey and Construction of Steel Ships** (*N-m*) E: Modulus of longitudinal elasticity (*N/mm*^{2}) Other symbols are the same as those used in **2.3, Part 7 of the Rules**.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.3

Correction	Present	Note
The wording “to be of sufficient strength” in **2.3.3-2, Part 7 of the Rules** means to be in accordance with the following **(1)** or **(2)**: (1) The thickness of shaft coupling flanges at the pitch circle of the bolt holes is to be not less than the diameter of the bolts determined by the formula in **2.3.3-1, Part 7 of the Rules** by using 440 N/mm^2 for T_b. The radius at the fillet transition between the flange and shaft is to be not less than 0.08 *times* the shaft diameter. In this case, the fillet is not to be recessed in way of the bolt heads and nuts. (2) Detailed calculation sheets for the strength of couplings (for the procedures and contents of these calculations, the following **(a)** to **(f)** are to be considered as standards) are to be submitted to the Society for approval. In this case, it is to be verified that the thickness of the coupling flange is larger than the diameter of the bolts determined by the formula in **2.3.3-1, Part 7 of the Rules** using the tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft material. (a) With the procedures specified in the following **(b)** to **(f)**, it is to be verified that the stress at the coupling is less than the allowable value. As the stress value in this case, comparisons are to be made by applying appropriate safety factors for yield points for bending stress, bending fatigue limits, yield points for torsional stress and torsional fatigue limits of the crankshaft material considering four types of stress, such as the maximum bending stress, fluctuating	The wording “to be of sufficient strength” in **2.3.3-2, Part 7 of the Rules** means to be in accordance with the following **(1)** or **(2)**: (1) The thickness of shaft coupling flanges at the pitch circle of the bolt holes is to be not less than the diameter of the bolts determined by the formula in **2.3.3-1, Part 7 of the Rules** by using 440 N/mm^2 for T_b. The radius at the fillet transition between the flange and shaft is to be not less than 0.08 *times* the shaft diameter. In this case, the fillet is not to be recessed in way of the bolt heads and nuts. (2) Detailed calculation sheets for the strength of couplings (for the procedures and contents of these calculations, the following **(a)** to **(f)** are to be considered as standards) are to be submitted to the Society for approval. In this case, it is to be verified that the thickness of the coupling flange is larger than the diameter of the bolts determined by the formula in **2.3.3-1, Part 7 of the Rules** using the tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft material. (a) With the procedures specified in the following **(b)** to **(f)**, it is to be verified that the stress at the coupling is less than the allowable value. As the stress value in this case, comparisons are to be made by applying appropriate safety factors for yield points for bending stress, bending fatigue limits, yield points for torsional stress and torsional fatigue limits of the crankshaft material considering four types of stress, such as the maximum bending stress, fluctuating	Reference correction

bending stress, the maximum torsional stress and fluctuating torsional stress. (b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in **Annex ~~D2~~2.3.1~~-2(1) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I”~~, Part D of the Rule for the Survey and Construction of Steel Ships** ~~or **Annex D2.3.1-2(2) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II”, Part D of the Guidance for the Survey and Construction of Steel Ships**~~ ~~Mean~~mean torque of this portion is to be determined. (c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph **(b)**, the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.) (d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined. (e) Bending moments in magnitudes that cause the	bending stress, the maximum torsional stress and fluctuating torsional stress. (b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in **Annex D2.3.1-2(1) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I”, Part D of the Rule for the Survey and Construction of Steel Ships** or **Annex D2.3.1-2(2) “GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II”, Part D of the Guidance for the Survey and Construction of Steel Ships** Mean torque of this portion is to be determined. (c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph **(b)**, the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.) (d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined. (e) Bending moments in magnitudes that cause the	

coupling flange of the crankshaft to assume the respective deflection angles determined in the preceding sub-paragraph **(d)** are to be determined, and the maximum bending stress and fluctuating bending stress of this portion are to be determined by dividing above by the section modulus of the coupling flange. (f) Respective tangential forces are to be determined by dividing the maximum torque value and fluctuating torque value determined in the preceding sub-paragraph **(c)** by the diameter of the crankshaft at the root of the coupling flange. The maximum torsional stress and fluctuating torsional stress are to be determined by dividing the above tangential forces by the sectional area of the coupling flange (crankshaft diameter ×π× flange thickness) at the root, and by multiplying the stress concentration factor.	coupling flange of the crankshaft to assume the respective deflection angles determined in the preceding sub-paragraph **(d)** are to be determined, and the maximum bending stress and fluctuating bending stress of this portion are to be determined by dividing above by the section modulus of the coupling flange. (f) Respective tangential forces are to be determined by dividing the maximum torque value and fluctuating torque value determined in the preceding sub-paragraph **(c)** by the diameter of the crankshaft at the root of the coupling flange. The maximum torsional stress and fluctuating torsional stress are to be determined by dividing the above tangential forces by the sectional area of the coupling flange (crankshaft diameter ×π× flange thickness) at the root, and by multiplying the stress concentration factor.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 3 3.3.1

Correction	Present	Note
In the case of bevel gear, the wording “deemed appropriate by the Society” in **3.3.1, Part 7 of the Rules** means as follows: (1) The bending strength at the root sections of gear teeth and limiting tooth surface strength are to be according to *ISO* standards or as deemed appropriate by the Society. (2) Evaluation of the strength of the interior of gear teeth may be required where deemed necessary by the Society. In such cases, the Vickers hardness (*HV*) of the interior of gear teeth is not to be less than the value obtained from the following formula. However, this requirement does not apply to bevel gears for which the tip diameter (outer end) is smaller than 1,100 *mm*: If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79. $HV = 1.11S_H p\left[\frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1+\left(\frac{z}{w}\right)^2}}\right]$ HV: Vickers hardness S_H: Safety factor for contact stress is to comply with the requirements in ~~**Annex D5.3.1 “CALCULATION OF STRENGTH OF ENCLOSED GEARS” 1.6.3-9**~~**1.6.3-9 of Annex 5.3.1**, **Part D of the Rules for the Survey and Construction of Steel Ships**. p: Real hertzian stress (*MPa*). The upper limit of the value of p used in this calculation is to be 1,500 *MPa.* $p = AS_c$	In the case of bevel gear, the wording “deemed appropriate by the Society” in **3.3.1, Part 7 of the Rules** means as follows: (1) The bending strength at the root sections of gear teeth and limiting tooth surface strength are to be according to *ISO* standards or as deemed appropriate by the Society. (2) Evaluation of the strength of the interior of gear teeth may be required where deemed necessary by the Society. In such cases, the Vickers hardness (*HV*) of the interior of gear teeth is not to be less than the value obtained from the following formula. However, this requirement does not apply to bevel gears for which the tip diameter (outer end) is smaller than 1,100 *mm*: If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79. $HV = 1.11S_H p\left[\frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1+\left(\frac{z}{w}\right)^2}}\right]$ HV: Vickers hardness S_H: Safety factor for contact stress is to comply with the requirements in **Annex D5.3.1 “CALCULATION OF STRENGTH OF ENCLOSED GEARS” 1.6.3-9, Part D of the Rules for the Survey and Construction of Steel Ships**. p: Real hertzian stress (*MPa*). The upper limit of the value of p used in this calculation is to be 1,500 *MPa.* $p = AS_c$	Reference correction

S_c: Contact stress (*MPa*), to be calculated according to *ISO 10300* standards. A: If S_c is calculated according to *ISO 10300* standards, then the coefficients are to be determined, in consideration of analysis results, by the Society on a case by case basis. In addition, if S_c is calculated according to *ISO 10300* standards, A is to be taken as 1.32 w: Half the hertzian contact width (*mm*), to be calculated by the following formula: $w = \frac{p\rho_C}{56300}$ $\rho_C = \frac{\rho_1\rho_2}{\rho_1 + \rho_2}$ $\rho_1 = 0.5d_{vn1}\sin\alpha_n$ $\rho_2 = 0.5d_{vn2}\sin\alpha_n$ $d_{vn1} = d_{m1}\frac{\sqrt{1+u^2}}{u}\frac{1}{\cos^2\beta_{vb}}$ d_{m1}: Mean pitch diameter of pinion (*mm*) u: Gear ratio $\beta_{vb} = \arcsin(\sin\beta_m\cos\alpha_n)$ β_m: Mean spiral angle α_n: Normal pressure angle $d_{vn2} = u^2d_{vn1}$ z: Depth from teeth surface to evaluation point (*mm*)	S_c: Contact stress (*MPa*), to be calculated according to *ISO 10300* standards. A: If S_c is calculated according to *ISO 10300* standards, then the coefficients are to be determined, in consideration of analysis results, by the Society on a case by case basis. In addition, if S_c is calculated according to *ISO 10300* standards, A is to be taken as 1.32 w: Half the hertzian contact width (*mm*), to be calculated by the following formula: $w = \frac{p\rho_C}{56300}$ $\rho_C = \frac{\rho_1\rho_2}{\rho_1 + \rho_2}$ $\rho_1 = 0.5d_{vn1}\sin\alpha_n$ $\rho_2 = 0.5d_{vn2}\sin\alpha_n$ $d_{vn1} = d_{m1}\frac{\sqrt{1+u^2}}{u}\frac{1}{\cos^2\beta_{vb}}$ d_{m1}: Mean pitch diameter of pinion (*mm*) u: Gear ratio $\beta_{vb} = \arcsin(\sin\beta_m\cos\alpha_n)$ β_m: Mean spiral angle α_n: Normal pressure angle $d_{vn2} = u^2d_{vn1}$ z: Depth from teeth surface to evaluation point (*mm*)	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.4-3

Correction	Present	Note
3 For ships of less than 30 *m* in length, the diameters of propeller shafts and stern tube shafts may be calculated using values given for k_2 in **Table 7.4.3, Part 7 of the Rules,** k_3 in **Table 7.4.4, Part 7 of the Rules,** k_3 in **Table 7.4.2.4-1, Part 7 of the Guidance** or k_3 in **Table 7.4.2.4-2, ~~Chapter 4,~~ Part 7 of the ~~Rules~~Guidance** multiplied by 0.92. The allowable limit of the torsional vibration stress, however, is to comply with the following: (1) For propeller shafts and stern tube shafts made of carbon steels or low alloy steels which are effective at preventing corrosion by water, the allowable limit of the torsional vibration stress is to be calculated with the value for C_k given in **Table 7.6.1, ~~Chapter 6,~~ Part 7 of the Rules** equal to 0.45. (2) For propeller shafts made of carbon steels or low alloy steels which are not effective at preventing corrosion by water as well as propeller shafts made of stainless steels, the allowable limit of the torsional vibration stress is to be calculated using the values for *A, B and C* given in **Table 7.6.2.2-1, Part 7 of the Guidance** multiplied by 0.8.	**3** For ships of less than 30 *m* in length, the diameters of propeller shafts and stern tube shafts may be calculated using values given for k_2 in **Table 7.4.3,** k_3 **in Table 7.4.4,** k_3 in **Table 7.4.2.4-1** or k_3 in **Table 7.4.2.4-2, Chapter 4, Part 7 of the Rules** multiplied by 0.92. The allowable limit of the torsional vibration stress, however, is to comply with the following: (1) For propeller shafts and stern tube shafts made of carbon steels or low alloy steels which are effective at preventing corrosion by water, the allowable limit of the torsional vibration stress is to be calculated with the value for C_k given in **Table 7.6.1, Chapter 6, Part 7 of the Rules** equal to 0.45. (2) For propeller shafts made of carbon steels or low alloy steels which are not effective at preventing corrosion by water as well as propeller shafts made of stainless steels, the allowable limit of the torsional vibration stress is to be calculated using the values for *A, B and C* given in **Table 7.6.2.2-1** multiplied by 0.8.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.10-1

Correction	Present	Note
1 The wording "provisions specified elsewhere" in **4.2.10-1(1)(a)i), Part 7 of the Rules** means the following **(1)** and **(2)** in principle: (1) Shaft alignment calculations are to be carried out in accordance with the requirements in **Annex 6.2.13** ~~**"Calculation of Shaft Alignment"**~~, **Part D of the Rules for the Survey and Construction of Steel Ships**. (2) For improving the lubricating condition of the bearing, the following measures are to be taken: (a) A lubricating oil inlet is to be provided at the aft end of the bearing to ensure the forced circulation of the lubricating oil. (b) Either of the following devices to measure stern tube bearing metal temperature at the aft end bottom along with high temperature alarms (with a preset value of 60 °C or below) is to be provided: i) Two or more temperature sensors embedded in the metal; or ii) An embedded temperature sensor, replaceable from inboard the ship, and a spare temperature sensor. In this case, the replacement of such sensors according to procedures submitted beforehand is to be demonstrated. (c) Low level alarms are to be provided for lubricating oil sump tanks.	**1** The wording "provisions specified elsewhere" in **4.2.10-1(1)(a)i), Part 7 of the Rules** means the following **(1)** and **(2)** in principle: (1) Shaft alignment calculations are to be carried out in accordance with the requirements in **Annex 6.2.13 "Calculation of Shaft Alignment"**, **Part D of the Rules for the Survey and Construction of Steel Ships**. (2) For improving the lubricating condition of the bearing, the following measures are to be taken: (a) A lubricating oil inlet is to be provided at the aft end of the bearing to ensure the forced circulation of the lubricating oil. (b) Either of the following devices to measure stern tube bearing metal temperature at the aft end bottom along with high temperature alarms (with a preset value of 60 °C or below) is to be provided: i) Two or more temperature sensors embedded in the metal; or ii) An embedded temperature sensor, replaceable from inboard the ship, and a spare temperature sensor. In this case, the replacement of such sensors according to procedures submitted beforehand is to be demonstrated. (c) Low level alarms are to be provided for lubricating oil sump tanks.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.10-2

Correction	Present	Note
2 The wording “provisions specified elsewhere” in **4.2.10-1(1)(b)ii), Part 7 of the Rules** means the following **(1)** and **(2)** in principle: (1) Nominal bearing pressure, etc. calculated in accordance with **Annex 6.2.13** ~~“Calculation of Shaft Alignment”~~**, Part D of the Rules for the Survey and Construction of Steel Ships** are to be within the allowable limits specified in the Type Approval Certificate. (2) The measures for lubricating condition specified in **-1(2)** are to be taken.	**2** The wording “provisions specified elsewhere” in **4.2.10-1(1)(b)ii), Part 7 of the Rules** means the following **(1)** and **(2)** in principle: (1) Nominal bearing pressure, etc. calculated in accordance with **Annex 6.2.13 “Calculation of Shaft Alignment”, Part D of the Rules for the Survey and Construction of Steel Ships** are to be within the allowable limits specified in the Type Approval Certificate. (2) The measures for lubricating condition specified in **-1(2)** are to be taken.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 6 6.2.2-3

Correction	Present	Note
3 For ships applying the requirements specified in **4.2.2**, the value for C_K specified in ~~**Table7**~~**Table 7.6.1, Part 7 of the Rules** is to be replaced by the value for C_K specified in ~~**Table7**~~**Table 7.6.2.2-2, Part 7 of the Guidance** when calculating the allowable limit of torsional vibration stress.	**3** For ships applying the requirements specified in **4.2.2**, the value for C_K specified in **Table7.6.1** is to be replaced by the value for C_K specified in **Table7.6.2.2-2** when calculating the allowable limit of torsional vibration stress.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 6 6.2.2-4

Correction	Present	Note
4 For ships applying the requirements specified in **4.2.3**, the value for C_K specified in ~~**Table7**~~**Table 7.6.1, Part 7 of the Rules** is to be replaced by the value for C_K specified in ~~**Table7**~~**Table 7.6.2.2-2, Part 7 of the Guidance** when calculating the allowable limit of torsional vibration stress.	**4** For ships applying the requirements specified in **4.2.3**, the value for C_K specified in **Table7.6.1** is to be replaced by the value for C_K specified in **Table7.6.2.2-2** when calculating the allowable limit of torsional vibration stress.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 9 9.4.5-2

Correction	Present	Note
2 The wording “other appropriate non-destructive tests” referred to in **9.4.5-8, Part 7 of the Rules** means the following **(1)** or **(2)**: (1) The radiographic testing to be carried out in accordance with *ISO* 17636. The criteria and others that are not specified in the *ISO* are to be in accordance with **9.4.5, Part 7 of the Rules** and this **9.4.5-1**. In cases of the radiographic testing using no radiograph film, the testing plan is to be submitted to and approved by the Society, prior to the testing. (2) The ultrasonic testing to be carried out in accordance with **9.4.6, Part 7 of the Rules** and **9.4.6-2** of this Chapter. In this case, ~~**1.1.2-2** of **Annex M1.4.2-3(1)** “Guidance for Non-destructive Inspections on Internal Imperfections of the Welded Joints of Hull Constructions”~~**Chapter 8, Part M of** ~~**Guidance**~~**the Rules for the Survey and Construction of Steel Ships** is to be applied.	**2** The wording “other appropriate non-destructive tests” referred to in **9.4.5-8, Part 7 of the Rules** means the following **(1)** or **(2)**: (1) The radiographic testing to be carried out in accordance with *ISO* 17636. The criteria and others that are not specified in the *ISO* are to be in accordance with **9.4.5, Part 7 of the Rules** and this **9.4.5-1**. In cases of the radiographic testing using no radiograph film, the testing plan is to be submitted to and approved by the Society, prior to the testing. (2) The ultrasonic testing to be carried out in accordance with **9.4.6, Part 7 of the Rules** and **9.4.6-2** of this Chapter. In this case, **1.1.2-2** of **Annex M1.4.2-3(1)** “Guidance for Non-destructive Inspections on Internal Imperfections of the Welded Joints of Hull Constructions”, **Part M of Guidance for the Survey and Construction of Steel Ships** is to be applied.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 11 11.10.1

Correction	Present	Note
Electric heaters provided in double bottom tanks and deep tanks are to comply with the requirements specified in **11.9.5**~~.~~**, Part 7 of the Rules**.	Electric heaters provided in double bottom tanks and deep tanks are to comply with the requirements specified in **11.9.5**.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 12 12.4.7-2

Correction	Present	Note
2 The wording “to the satisfaction of the Society” specified in **12.4.7-5, Part 7 of the Rules** means to comply with the requirements specified in the **Appendix C1** ~~“Reference Data for Design”~~**, Part C of the Guidance for the Survey and Construction of Steel Ships**.	**2** The wording “to the satisfaction of the Society” specified in **12.4.7-5, Part 7 of the Rules** means to comply with the requirements specified in the **Appendix C1** “Reference Data for Design”, **Part C of the Guidance for the Survey and Construction of Steel Ships**.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 15 15.6.1

Correction	Present	Note
Tank barges with double bottoms In cases where tank barges with double bottoms use the spaces underneath their cargo oil tanks for purposes other than holding cargo oil, the requirements specified in ~~**Chapter15**~~**Chapter 15, Part 7 of the Rules** as well as the following requirements specified in this**15.6.1** are to be complied with: (1) Air pipes and sounding pipes provided in double bottoms may pass through cargo oil tanks. In this case, all pipe joints in such cargo oil tanks are to be welded joints of sufficient thickness according to the requirements of **Table 7.10.6, Part 7 of the Rules**. Furthermore, consideration is to be given to piping arrangements for the expansion and contraction of the pipes. (2) Valve operating rods are not to pass through any part subjected at all times to liquid head, such as the inner bottom plates of cargo tanks. (3) Notwithstanding the requirements of **15.6.8, Part 7 of the Rules**, ballast pipes are not to pass through any spaces within cargo oil tanks.	Tank barges with double bottoms In cases where tank barges with double bottoms use the spaces underneath their cargo oil tanks for purposes other than holding cargo oil, the requirements specified in **Chapter15, Part 7 of the Rules** as well as the following requirements specified in this**15.6.1** are to be complied with: (1) Air pipes and sounding pipes provided in double bottoms may pass through cargo oil tanks. In this case, all pipe joints in such cargo oil tanks are to be welded joints of sufficient thickness according to the requirements of **Table 7.10.6, Part 7 of the Rules**. Furthermore, consideration is to be given to piping arrangements for the expansion and contraction of the pipes. (2) Valve operating rods are not to pass through any part subjected at all times to liquid head, such as the inner bottom plates of cargo tanks. (3) Notwithstanding the requirements of **15.6.8, Part 7 of the Rules**, ballast pipes are not to pass through any spaces within cargo oil tanks.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 15 15.6.5

Correction	Present	Note
Piping systems to be connected to cargo oil piping are to be dealt with under the following requirements: (1) Pumps and pipes in any piping systems connected to cargo oil pipes are to be dealt with in the same manner as those in cargo oil piping systems. However, for those piping systems specified in **15.6.3-4**, **15.6.10-6**, and **15.6.14-2**, **Part 7 of the Rules** and item **(2)** below, this requirement may be dispensed with. Piping systems connected to cargo oil piping means those connected to cargo oil pipes, and those piping systems having openings thereto. Accordingly, hydraulic oil pipes for controlling cargo oil piping systems, for example, are not regarded as a piping system connected to the cargo oil piping. (2) In cases where cargo oil piping systems are connected to the following piping systems: (a) Tank vent pipes The requirements in **35.2.**~~7-7~~**2-3(2)(g)** and ~~-8,~~**(h), Part R of the Rules for the Survey and Construction of Steel Ships** are to be complied with. In addition, ventilating fans, except for inert gas blowers, are to be installed within hazardous area. (b) Pressure gauge pipes for cargo oil piping systems (including pumps) Pressure gauges to which cargo oil is directly led are to be installed in pump rooms or on weather decks. However, in cases where stop valves are provided at joints between pressure gauge piping systems and cargo oil piping systems, and in cases where bulkhead valves are provided at locations where such pipes penetrate bulkhead	Piping systems to be connected to cargo oil piping are to be dealt with under the following requirements: (1) Pumps and pipes in any piping systems connected to cargo oil pipes are to be dealt with in the same manner as those in cargo oil piping systems. However, for those piping systems specified in **15.6.3-4**, **15.6.10-6**, and **15.6.14-2**, **Part 7 of the Rules** and item **(2)** below, this requirement may be dispensed with. Piping systems connected to cargo oil piping means those connected to cargo oil pipes, and those piping systems having openings thereto. Accordingly, hydraulic oil pipes for controlling cargo oil piping systems, for example, are not regarded as a piping system connected to the cargo oil piping. (2) In cases where cargo oil piping systems are connected to the following piping systems: (a) Tank vent pipes The requirements in **35.2.7-7** and **-8**, **Part R of the Rules for the Survey and Construction of Steel Ships** are to be complied with. In addition, ventilating fans, except for inert gas blowers, are to be installed within hazardous area. (b) Pressure gauge pipes for cargo oil piping systems (including pumps) Pressure gauges to which cargo oil is directly led are to be installed in pump rooms or on weather decks. However, in cases where stop valves are provided at joints between pressure gauge piping systems and cargo oil piping systems, and in cases where bulkhead valves are provided at locations where such pipes penetrate bulkhead	Reference correction

between engine rooms and pump rooms, pressure gauges may be installed in engine rooms. (c) Pipes for measuring oil content Sampling pipes for measuring oil content may be led to spaces other than hazardous area, in cases where such pipes have nominal diameters of 25*A* or less and in cases where two or more stop valves are provided between cargo oil piping and the penetration of the casing of non-hazardous area.	between engine rooms and pump rooms, pressure gauges may be installed in engine rooms. (c) Pipes for measuring oil content Sampling pipes for measuring oil content may be led to spaces other than hazardous area, in cases where such pipes have nominal diameters of 25*A* or less and in cases where two or more stop valves are provided between cargo oil piping and the penetration of the casing of non-hazardous area.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.8.4-2

Correction	Present	Note
2 The procedure for omitting the temperature rise tests, etc. specified in **2.8.4, Part 8 of the Rules** is the same as that specified for rotating machines in **~~8.~~2.4.15-2(1~~)~~)** to **(7~~);~~), Part 8 of the Guidance**; however, the term "rotating machines" is to be read as "controlgears for motors". In addition, the checklist given in **~~8.~~2.4.15-2(7~~)~~), Part 8 of the Guidance** is to be checklist (CL-ST-IL) prepared by the manufacturer.	**2** The procedure for omitting the temperature rise tests, etc. specified in **2.8.4, Part 8 of the Rules** is the same as that specified for rotating machines in **8.2.4.15-2(1)** to **(7)**; however, the term "rotating machines" is to be read as "controlgears for motors". In addition, the checklist given in **8.2.4.15-2(7)** is to be checklist (**CL-ST-IL**) prepared by the manufacturer.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.8.4-3

Correction	Present	Note
3 High voltage tests are to be in accordance with **~~8.~~2.5.10-3** to **~~-~~-5, Part 8 of Guidance** as far as practicable.	**3** High voltage tests are to be in accordance with **8.2.5.10-3** to **-5** as far as practicable.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 8 Chapter 2 2.10.4

Correction	Present	Note
The wording "in those cases where deemed appropriate by the Society" in **2.10.4-2, Part 8 of the Rules** means that limits of temperature rise may be modified as follows: (1) In cases where forced cooling is provided and the temperatures of cooling water at the inlets of air coolers are not higher than 32 ℃, limits of temperature rise may be set 13*K* higher than those limits specified in **Table 8.2.~~16~~2, Part 8 of the Rules**. (2) In cases where forced cooling is provided and the temperatures of cooling water at the inlets of coolers are higher than 32℃, limits of temperature rise may be determined by the Society on a case by case basis.	The wording "in those cases where deemed appropriate by the Society" in **2.10.4-2, Part 8 of the Rules** means that limits of temperature rise may be modified as follows: (1) In cases where forced cooling is provided and the temperatures of cooling water at the inlets of air coolers are not higher than 32 ℃, limits of temperature rise may be set 13*K* higher than those limits specified in **Table 8.2.16, Part 8 of the Rules**. (2) In cases where forced cooling is provided and the temperatures of cooling water at the inlets of coolers are higher than 32℃, limits of temperature rise may be determined by the Society on a case by case basis.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.5-1

Correction	Present	Note
1 With respect to the requirements of **3.5.5~~-1~~(1), Part 9 of the Rules**: (1) For minimizing possible accumulation of the flammable vapours, the ducts are to be arranged, to permit ventilation in the vicinity of the cargo pump-room bilge, above the floor plate or bottom longitudinals. An emergency intake located nearly 2 *m* above the cargo pump-room lower grating is to be arranged for the ducts, and this emergency intake is to have a damper which is capable of being opened or closed from the weather deck and lower grating level. When the lower inlets are closed, at least 15 air changes per hour are to be obtained through the upper inlets. (2) The ventilation fan of non-sparking construction is to	**1** With respect to the requirements of **3.5.5-1(1), Part 9 of the Rules**: (1) For minimizing possible accumulation of the flammable vapours, the ducts are to be arranged, to permit ventilation in the vicinity of the cargo pump-room bilge, above the floor plate or bottom longitudinals. An emergency intake located nearly 2 *m* above the cargo pump-room lower grating is to be arranged for the ducts, and this emergency intake is to have a damper which is capable of being opened or closed from the weather deck and lower grating level. When the lower inlets are closed, at least 15 air changes per hour are to be obtained through the upper inlets. (2) The ventilation fan of non-sparking construction is to	Reference correction

be as follows: (a) The ventilation fan of non-sparking construction means fans of which materials used for impellers and/or housings are regarded as having a non-sparking property in accordance with **Table 9.3.5.5-1** and of which blade tip clearance is at least 10% of the shaft diameter but need not be more than 13 *mm* (minimum 2 *mm*) except if such materials are ferrous meterials (including austenitic stainless steel). Those specified in this **(a)** also apply to the portable blower fans used outside the cargo pump-room. (b) Notwithstanding the requirements specified in **(a)** above, fans for which non-sparking property test is carried out in accordance with the procedures approved by the Society in the presence of the Surveyor with satisfactory results may be considered as a non-sparking type. This test may be omitted for fans having test results considered as appropriate by the Society. (c) Where non-metal materials are used, the anti-electrostatic property is to be verified by a method considered as appropriate by the Society. Fans of which electrical leakage resistance (insulation resistance to earth) is less than $1 \times 10^6\ \Omega$ or electrical conductivity is not less than $1 \times 10^8\ S/m$ may be regarded as having an anti-electrostatic property. (d) Ventilation fans are to be earthed effectively with the hull. (3) The wording “mesh of suitable size” for wire mesh screens means a mesh not exceeding 13 *mm* × 13 *mm*.	be as follows: (a) The ventilation fan of non-sparking construction means fans of which materials used for impellers and/or housings are regarded as having a non-sparking property in accordance with **Table 9.3.5.5-1** and of which blade tip clearance is at least 10% of the shaft diameter but need not be more than 13 *mm* (minimum 2 *mm*) except if such materials are ferrous meterials (including austenitic stainless steel). Those specified in this **(a)** also apply to the portable blower fans used outside the cargo pump-room. (b) Notwithstanding the requirements specified in **(a)** above, fans for which non-sparking property test is carried out in accordance with the procedures approved by the Society in the presence of the Surveyor with satisfactory results may be considered as a non-sparking type. This test may be omitted for fans having test results considered as appropriate by the Society. (c) Where non-metal materials are used, the anti-electrostatic property is to be verified by a method considered as appropriate by the Society. Fans of which electrical leakage resistance (insulation resistance to earth) is less than $1 \times 10^6\ \Omega$ or electrical conductivity is not less than $1 \times 10^8\ S/m$ may be regarded as having an anti-electrostatic property. (d) Ventilation fans are to be earthed effectively with the hull. (3) The wording “mesh of suitable size” for wire mesh screens means a mesh not exceeding 13 *mm* × 13 *mm*.	

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.5-2

Correction	Present	Note
2 The wording "the wire gauze to prevent the passage of flame" specified in **3.5.5~~-1~~(2), Part 9 of the Rules** means the one specified in **15.6.14-3(1), Part 7**.	**2** The wording "the wire gauze to prevent the passage of flame" specified in **3.5.5-1(2), Part 9 of the Rules** means the one specified in **15.6.14-3(1), Part 7**.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.6-1

Correction	Present	Note
1 The wording "means to prevent hydrocarbon gases from the cargo tanks entering the double hull spaces through the system" specified in **3.5.6-3(2), Part 9 of the Rules** means that the branch lines for the supply of inert gas into the double hull spaces are connected to the position between the inert gas regulating valves specified in **35.2.~~6-~~3(1)(b), Part R of the Rules for the Survey and Construction of Steel Ships** and the water seal specified in **35.2.~~6-4~~2-3(1), Part R of the Rules for the Survey and Construction of Steel Ships** or equivalent measures, and are fitted with the water seal in addition to the water seal required in **35.2.~~6-4~~2-3(1), Part R of the Rules for the Survey and Construction of Steel Ships** to prevent hydrocarbon gases from the polluted double hull spaces entering machinery spaces or other safety spaces.	**1** The wording "means to prevent hydrocarbon gases from the cargo tanks entering the double hull spaces through the system" specified in **3.5.6-3(2), Part 9 of the Rules** means that the branch lines for the supply of inert gas into the double hull spaces are connected to the position between the inert gas regulating valves specified in **35.2.6-3(1), Part R of the Rules for the Survey and Construction of Steel Ships** and the water seal specified in **35.2.6-4(1), Part R of the Rules for the Survey and Construction of Steel Ships** or equivalent measures, and are fitted with the water seal in addition to the water seal required in **35.2.6-4(1), Part R of the Rules for the Survey and Construction of Steel Ships** to prevent hydrocarbon gases from the polluted double hull spaces entering machinery spaces or other safety spaces.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.6-3

Correction	Present	Note
3 The wording "the requirements deemed appropriate by the Society" specified in **3.5.6-4(1), Part 9 of the Rules** means the requirements of the **~~Annex S11.1.1-2(1)(a),~~Chapter 35, Part ~~S~~R of the ~~Guidance~~Rules for the Survey and Construction of Steel Ships~~ "Inert Gas Systems using Oil Fired Inert Gas Generators on Ships Carrying Dangerous Chemicals in Bulk"~~**.	**3** The wording "the requirements deemed appropriate by the Society" specified in **3.5.6-4(1), Part 9 of the Rules** means the requirements of the **Annex S11.1.1-2(1)(a), Part S of the Guidance for the Survey and Construction of Steel Ships "Inert Gas Systems using Oil Fired Inert Gas Generators on Ships Carrying Dangerous Chemicals in Bulk"**.	Reference correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 8 8.5.2-1

Correction	Present	Note
1 With respect to the requirements of **8.5.2, Part 9 of the Rules**, the provisions of **8.5.1-1** to **8.5.1-3, Part 9** of ~~**8.5.1** of this~~**the Guidance** are to be applied.	**1** With respect to the requirements of **8.5.2, Part 9 of the Rules**, the provisions of **-1** to **-3** of **8.5.1** of this Guidance are to be applied.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 9 9.3.3-2

Correction	Present	Note
2 With respect to the requirements specified in **9.3.3, Part 9 of the Rules**, doors on escape routes provided in machinery spaces' boundaries facing control stations, accommodation or service spaces are, in general, to comply with the requirements of **9.2.1~~.~~-5, Part 9 of the Rules**. Details of means of escape except ladders in fire shelter are to be in accordance with **9.2.2-5, Part 9 of the Rules**.	**2** With respect to the requirements specified in **9.3.3, Part 9 of the Rules**, doors on escape routes provided in machinery spaces' boundaries facing control stations, accommodation or service spaces are, in general, to comply with the requirements of **9.2.1.5, Part 9 of the Rules**. Details of means of escape except ladders in fire shelter are to be in accordance with **9.2.2-5, Part 9 of the Rules**.	Wording correction

Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 9 9.3.3-3

Correction	Present	Note
3 The wording "emergency steering position" specified in **9.3.~~2~~3-2, Part 9 of the Rules** means all steering positions other than that in the navigation bridge.	**3** The wording "emergency steering position" specified in **9.3.2-2, Part 9 of the Rules** means all steering positions other than that in the navigation bridge.	Reference correction

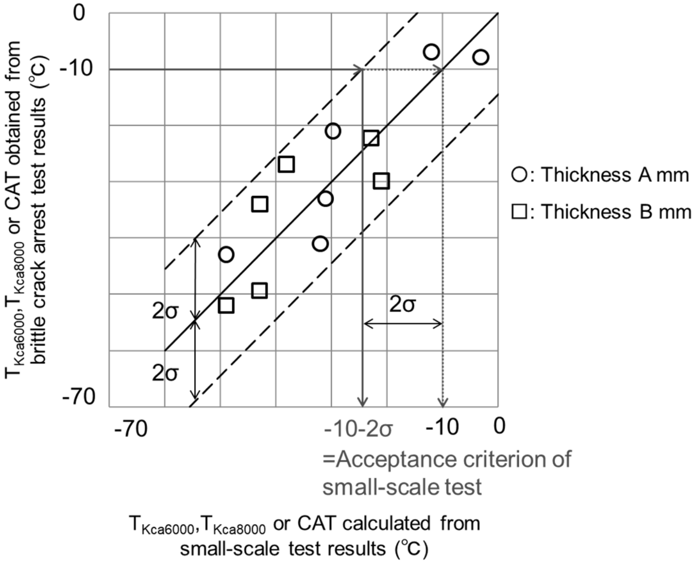
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.1 1.1.1-2

Correction	Present	Note
2 Unless otherwise specified in this annex, **Chapter 1, Part ~~1~~I** is to be followed.	**2** Unless otherwise specified in this annex, **Chapter 1, Part 1** is to be followed.	Reference correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.1 1.3.5-2

Correction	Present	Note
2 Unless otherwise agreed to by the Society, acceptance criteria for small-scale tests are to be determined by following procedures: (1) Correlation by temperature (a) The required temperature (see ~~**Figure**~~**Fig. 1.1-1**) is obtained by subtracting 2σ (°C) from the brittle crack arrest steel specification in **Table K3.41, Part K of the Rules for the Survey and Construction of Steel Ships** (i.e. −10 − 2σ (°C)), where 2σ is given in **1.3.4-2**. $T_{Kca6000}$ and $T_{Kca8000}$ in ~~**Figure**~~**Fig. 1.1-1** are the temperatures at which K_{ca} equals 6,000 $N/mm^{3/2}$ and 8,000 $N/mm^{3/2}$, respectively. (b) Temperature predicted from small-scale test results using the regression equation are to be no higher than the value of −10 − 2σ (°C). (2) Correlation by brittle crack arrest toughness (K_{ca}) (a) The required K_{ca} (see ~~**Figure**~~**Fig. 1.1-2**) is obtained by adding 2σ ($N/mm^{3/2}$) to the brittle crack arrest steel specification in **Table K3.40, Part K of the Rules for the Survey and Construction of Steel Ships** that is either 6,000 + 2σ ($N/mm^{3/2}$) for *BCA*6000 or 8,000 + 2σ ($N/mm^{3/2}$) for *BCA*8000, where 2σ is given in **1.3.4-2**. (b) K_{ca} values predicted from small-scale test results using the regression equation are to be no smaller than the values of 6000 + 2σ ($N/mm^{3/2}$) for *BCA*6000 or 8000 + 2σ ($N/mm^{3/2}$) for *BCA*8000.	**2** Unless otherwise agreed to by the Society, acceptance criteria for small-scale tests are to be determined by following procedures: (1) Correlation by temperature (a) The required temperature (see **Figure 1.1-1**) is obtained by subtracting 2σ (°C) from the brittle crack arrest steel specification in **Table K3.41, Part K of the Rules for the Survey and Construction of Steel Ships** (i.e. −10 − 2σ (°C)), where 2σ is given in **1.3.4-2**. $T_{Kca6000}$ and $T_{Kca8000}$ in **Figure 1.1-1** are the temperatures at which K_{ca} equals 6,000 $N/mm^{3/2}$ and 8,000 $N/mm^{3/2}$, respectively. (b) Temperature predicted from small-scale test results using the regression equation are to be no higher than the value of −10 − 2σ (°C). (2) Correlation by brittle crack arrest toughness (K_{ca}) (a) The required K_{ca} (see **Figure 1.1-2**) is obtained by adding 2σ ($N/mm^{3/2}$) to the brittle crack arrest steel specification in **Table K3.40, Part K of the Rules for the Survey and Construction of Steel Ships** that is either 6,000 + 2σ ($N/mm^{3/2}$) for *BCA*6000 or 8,000 + 2σ ($N/mm^{3/2}$) for *BCA*8000, where 2σ is given in **1.3.4-2**. (b) K_{ca} values predicted from small-scale test results using the regression equation are to be no smaller than the values of 6000 + 2σ ($N/mm^{3/2}$) for *BCA*6000 or 8000 + 2σ ($N/mm^{3/2}$) for *BCA*8000.	Wording correction

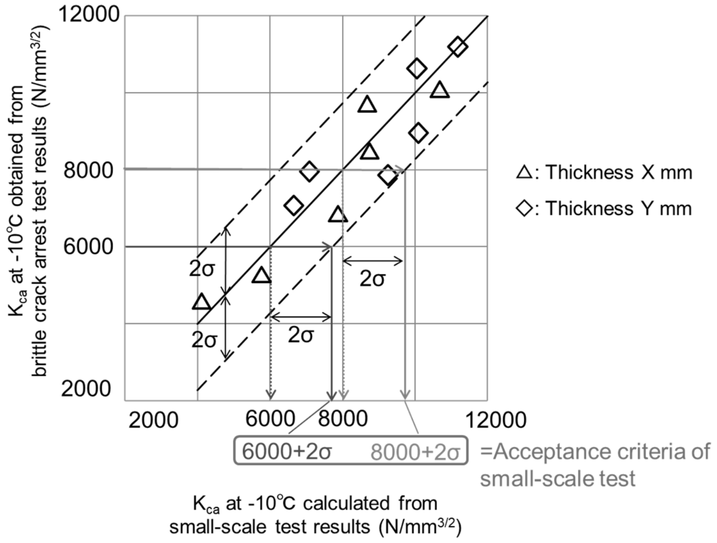
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.1 Fig. 1.1-1

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Figure~~Fig. 1.1-1 Example for Determination of Acceptance Criterion of Small-scale Test for Correlation by Means of Temperature (Note: This is only a schematic and may not represent the actual data obtained)

</td><td>Wording correction</td></tr>
</table>

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.1 Fig. 1.1-2

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">

~~Figure~~Fig. 1.1-2 Example for Determination of Acceptance Criteria of Small-scale Test for Correlation by Means of Brittle Crack Arrest Toughness (K_{ca}) (Note: This is only a schematic and may not represent the actual data obtained)

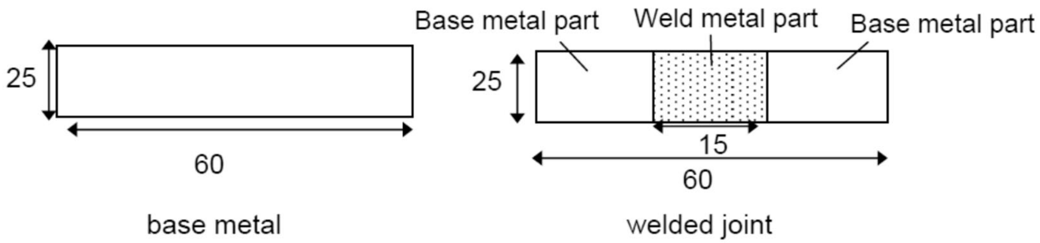


</td><td>Wording correction</td></tr>
</table>

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-1

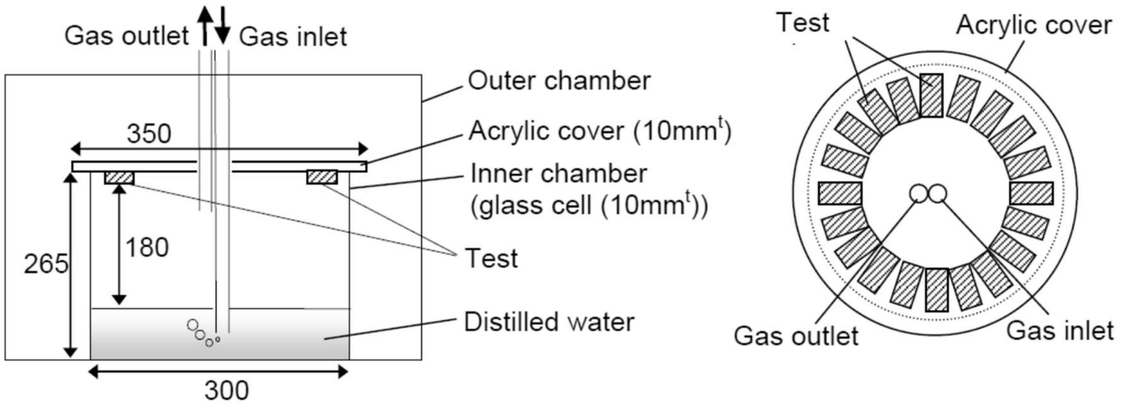
<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">

~~Figure~~Fig. 1.1-1 Test Piece of This Test



</td><td>Wording correction</td></tr>
</table>

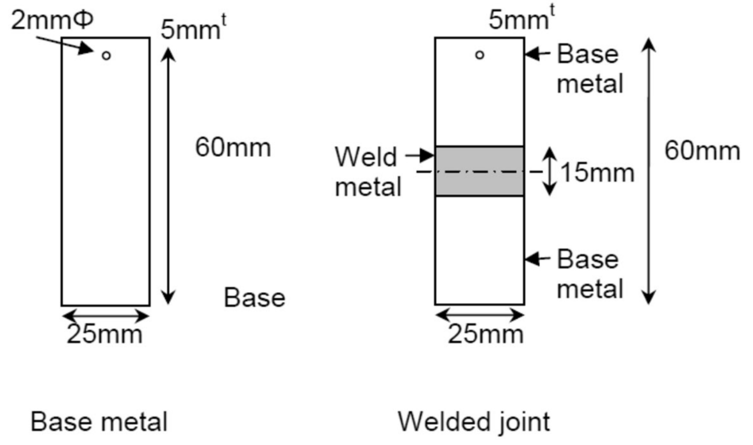
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-2

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Figure~~Fig. 1.1-2 An Example of Simulated Corrosion Test Apparatus for Upper Deck
 </td><td>Wording correction</td></tr>
</table>

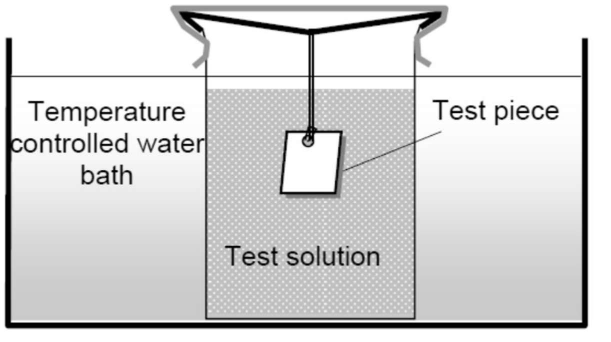
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-2

Correction	Present	Note
Tests on simulated inner bottom conditions in cargo oil tanks (COT) are to satisfy each of the following conditions. (1) The test is to be carried out for 72 h for base metal, and 168 h for welded joint. (2) There are to be at least five test pieces of corrosion resistant steel for base metal and welded joint, respectively. For comparison, at least five test pieces of base metal of conventional steel should be tested in the same condition. (3) The size of each test piece is 25 ± 1 *mm* x 60 ± 1 *mm* x 5 ± 0.5 *mm* for a specimen with base metal only, and is 25 ± 1 *mm* x 60 ± 1 *mm* x 5 ± 0.5 *mm* for a specimen with welded joint including 15 ± 5 *mm* width of weld metal part as shown in ~~**Figure**~~**Fig. 1.1-3**. The surface of the test pieces is to be polished with an emery paper #600, except a hole for hanging. (4) The samples are hung in a solution from a fishing line (0.3 *mm* to 0.4 *mm* in diameter, made of nylon) to avoid crevice-like and/or localized corrosion. An example of a corrosion test configuration is shown in ~~**Figure**~~**Fig. 1.1-4**. (5) The test solution contains 10 mass% $NaCl$ and its pH is 0.85 adjusted by HCl solution. The test solution should be changed to a new one every 24 h to minimize pH change of the test solution. The volume of the solution is more than 20 cc/cm^2 (surface area of test piece). The temperature of the test solution is to be kept at 30 ± 2°C.	Tests on simulated inner bottom conditions in cargo oil tanks (COT) are to satisfy each of the following conditions. (1) The test is to be carried out for 72 h for base metal, and 168 h for welded joint. (2) There are to be at least five test pieces of corrosion resistant steel for base metal and welded joint, respectively. For comparison, at least five test pieces of base metal of conventional steel should be tested in the same condition. (3) The size of each test piece is 25 ± 1 *mm* x 60 ± 1 *mm* x 5 ± 0.5 *mm* for a specimen with base metal only, and is 25 ± 1 *mm* x 60 ± 1 *mm* x 5 ± 0.5 *mm* for a specimen with welded joint including 15 ± 5 *mm* width of weld metal part as shown in **Figure 1.1-3**. The surface of the test pieces is to be polished with an emery paper #600, except a hole for hanging. (4) The samples are hung in a solution from a fishing line (0.3 *mm* to 0.4 *mm* in diameter, made of nylon) to avoid crevice-like and/or localized corrosion. An example of a corrosion test configuration is shown in **Figure 1.1-4**. (5) The test solution contains 10 mass% $NaCl$ and its pH is 0.85 adjusted by HCl solution. The test solution should be changed to a new one every 24 h to minimize pH change of the test solution. The volume of the solution is more than 20 cc/cm^2 (surface area of test piece). The temperature of the test solution is to be kept at 30 ± 2°C.	Wording correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-3

Correction	Present	Note
~~Figure~~Fig. 1.1-3 Test Piece for This Test  Base metal Welded joint		Wording correction

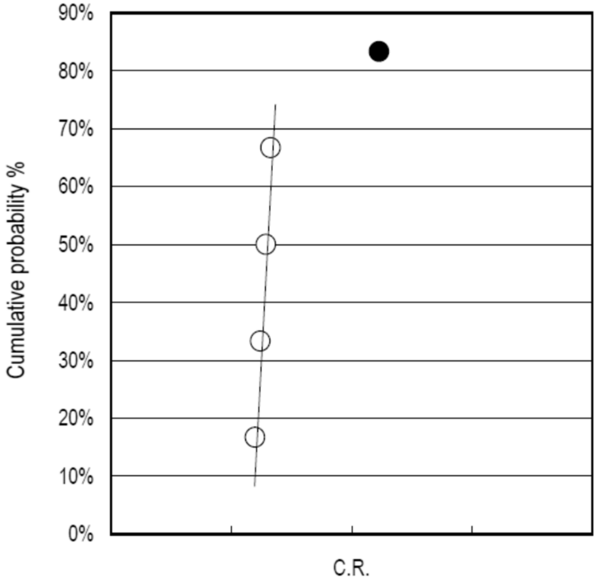
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-4

Correction	Present	Note
~~Figure~~Fig. 1.1-4 Simulated Corrosion Test Apparatus for Inner Bottom  		Wording correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 1.2.2-2

Correction	Present	Note
2 After the testing, the following measured data are to be reported: (1) weight loss (difference between initial weight and weight after testing) (2) corrosion rate ($C.R.$) calculated by the following formula: $C.R.(mm/year) = \frac{365(days) \times 24(hours) \times W \times 10}{S \times 72(hours) \times D}$ W: weight loss (g) S: surface area (cm^2) D: density (g/cm^3) (3) To identify specimen which hold crevice and/or localized corrosion, the $C.R.$ is to be plotted on a normal distribution statistic chart. $C.R.$ data which deviate from the normal statistical distribution are to be eliminated from the test results. An example is shown in ~~**Figure**~~**Fig. 1.1-5** for reference. (4) calculation of average of $C.R.$'s data ($C.R.ave$)	**2** After the testing, the following measured data are to be reported: (1) weight loss (difference between initial weight and weight after testing) (2) corrosion rate ($C.R.$) calculated by the following formula: $C.R.(mm/year) = \frac{365(days) \times 24(hours) \times W \times 10}{S \times 72(hours) \times D}$ W: weight loss (g) S: surface area (cm^2) D: density (g/cm^3) (3) To identify specimen which hold crevice and/or localized corrosion, the $C.R.$ is to be plotted on a normal distribution statistic chart. $C.R.$ data which deviate from the normal statistical distribution are to be eliminated from the test results. An example is shown in **Figure 1.1-5** for reference. (4) calculation of average of $C.R.$'s data ($C.R.ave$)	Wording correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 1.2 Fig. 1.1-5

<table>
<tr><th>Correction</th><th>Present</th><th>Note</th></tr>
<tr><td colspan="2">~~Figure~~Fig. 1.1-5 An Example of Plot of *C.R.*s on a Normal Distribution Chart
(In this case *C.R.* data ● should to be abandoned and eliminated.)
 </td><td>Wording correction</td></tr>
</table>

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 2.2 Chapter 1 1.2.1-6

Correction	Present	Note
6 Freeboard and Stability Tests [7.1.1] Freeboard and stability tests are to be carried out in accordance with **1.2.2-7(1)(b~~)~~)** "Loading Test (Freeboard Measurement)" of **Annex 2.2** "Procedures for Prototype Tests for Type Approval and Production Tests for Rescue Boats" as well as **1.2.7** "Lifeboat Freeboard and Stability Tests" of **Annex 2.1** "Procedures for Prototype Tests for Type Approval and Production Tests of Lifeboats".	**6** Freeboard and Stability Tests [7.1.1] Freeboard and stability tests are to be carried out in accordance with **1.2.2-7(1)(b)** "Loading Test (Freeboard Measurement)" as well as **1.2.7** "Lifeboat Freeboard and Stability Tests" of **Annex 2.1** "Procedures for Prototype Tests for Type Approval and Production Tests of Lifeboats".	Wording correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 2.2 Chapter 1 1.2.2-17

Correction	Present	Note
17 Mooring out Test [7.2.15] Mooring out test is to be carried out in accordance with **1.2.5** “Mooring out tests” of **Annex 2.3** “Procedures for Prototype Tests for Type Approval and Production Tests of Inflatable Liferafts”	**17** Mooring out Test [7.2.15] Mooring out test is to be carried out in accordance with **1.2.5** “Mooring out tests” of **Annex 3** “Procedures for Prototype Tests for Type Approval and Production Tests of Inflatable Liferafts”	Reference correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 2.2 Chapter 1 1.2.4-6

Correction	Present	Note
6 Freeboard and Stability Tests Freeboard and stability tests are to be carried out in accordance with **1.2.2-7(1)(b~~)~~)** “Loading Test (Freeboard Measurement)” of **Annex 2.2** “Procedures for Prototype Tests for Type Approval and Production Tests for Rescue Boats” as well as **1.2.7** “Lifeboat Freeboard and Stability Tests” of **Annex 2.1** “Procedures for Prototype Tests for Type Approval and Production Tests of Lifeboats”.	**6** Freeboard and Stability Tests Freeboard and stability tests are to be carried out in accordance with **1.2.2-7(1)(b)** “Loading Test (Freeboard Measurement)” as well as **1.2.7** “Lifeboat Freeboard and Stability Tests” of **Annex 2.1** “Procedures for Prototype Tests for Type Approval and Production Tests of Lifeboats”.	Wording correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 2.2 Chapter 1 1.2.6-17

Correction	Present	Note
17 Mooring out Test A mooring out test is to be carried out in accordance with **1.2.5** “Mooring out test” of **Annex 2.3** “Procedures for Prototype Tests for Type Approval and Production Tests of Inflatable Liferafts”, except if the boats has its waterline below the lower side of the inflated tube.	**17** Mooring out Test A mooring out test is to be carried out in accordance with **1.2.5** “Mooring out test” of **Annex 3** “Procedures for Prototype Tests for Type Approval and Production Tests of Inflatable Liferafts”, except if the boats has its waterline below the lower side of the inflated tube.	Reference correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 4.1 1.4

Correction	Present	Note
The test report is to include the following information: (1) Name of the manufacturer; (2) Date of tests; (3) Product name/identification of both paint and primer (if ~~**Part 4,**~~ **4.1.1-2(2)**, **Part 4**, including kind of shop primer); (4) Batch number; (5) Data of surface preparation on steel panels, including the following: (a) Surface treatment; (b) Water soluble salts limit; (c) Dust; and (d) Abrasive inclusions; (6) Application data of coating system, including the following: (a) Shop primed; (b) Number of coats; (c) Recoat interval*; (d) Dry film thickness (*DFT*) prior to testing*; (e) Thinner*; (f) Humidity*; (g) Air temperature*; and (h) Steel temperature; (Remark) * Both of actual specimen data and manufacturer's requirement/recommendation. (7) Test results according to **1.2**; and (8) Judgment according to **1.3**.	The test report is to include the following information: (1) Name of the manufacturer; (2) Date of tests; (3) Product name/identification of both paint and primer (if **Part 4, 4.1.1-2(2)**, including kind of shop primer); (4) Batch number; (5) Data of surface preparation on steel panels, including the following: (a) Surface treatment; (b) Water soluble salts limit; (c) Dust; and (d) Abrasive inclusions; (6) Application data of coating system, including the following: (a) Shop primed; (b) Number of coats; (c) Recoat interval*; (d) Dry film thickness (*DFT*) prior to testing*; (e) Thinner*; (f) Humidity*; (g) Air temperature*; and (h) Steel temperature; (Remark) * Both of actual specimen data and manufacturer's requirement/recommendation. (7) Test results according to **1.2**; and (8) Judgment according to **1.3**.	Reference correction

Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 4.2 1.4

Correction	Present	Note
The test report is to include the following information: (1) Name of the manufacturer; (2) Date of tests; (3) Product name/identification of both paint and primer (if ~~**Part4,**~~ **4.1.1-2(2)**, **Part 4**, including kind of shop primer); (4) Batch number; (5) Data of surface preparation on steel panels, including the following: (a) Surface treatment; (b) Water soluble salts limit; (c) Dust; and (d) Abrasive inclusions; (6) Application data of coating system, including the following: (a) Shop primed; (b) Number of coats; (c) Recoat interval*; (d) Dry film thickness (*DFT*) prior to testing*; (e) Thinner*; (f) Humidity*; (g) Air temperature*; and (h) Steel temperature; (Remark) * Both of actual specimen data and manufacturer's requirement/recommendation. (7) Test results according to **1.2**; and (8) Judgment according to **1.3**.	The test report is to include the following information: (1) Name of the manufacturer; (2) Date of tests; (3) Product name/identification of both paint and primer (if **Part4, 4.1.1-2(2)**, including kind of shop primer); (4) Batch number; (5) Data of surface preparation on steel panels, including the following: (a) Surface treatment; (b) Water soluble salts limit; (c) Dust; and (d) Abrasive inclusions; (6) Application data of coating system, including the following: (a) Shop primed; (b) Number of coats; (c) Recoat interval*; (d) Dry film thickness (*DFT*) prior to testing*; (e) Thinner*; (f) Humidity*; (g) Air temperature*; and (h) Steel temperature; (Remark) * Both of actual specimen data and manufacturer's requirement/recommendation. (7) Test results according to **1.2**; and (8) Judgment according to **1.3**.	Reference correction

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