

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part D

Machinery Installations

Rules for the Survey and Construction of Steel Ships

Part D

2008

AMENDMENT NO.2

Guidance for the Survey and Construction of Steel Ships

Part D

2008

AMENDMENT NO.2

Rule No.36 / Notice No.37 29th May 2008

Resolved by Technical Committee on 1st February 2008

Approved by Board of Directors on 26th February 2008

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Rule No.36 29th May 2008

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

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

Part D MACHINERY INSTALLATIONS

Amendment 2-1

Chapter 10 PRESSURE VESSELS

10.8 Fittings, etc.

10.8.3 Installation of Pressure Relief Devices

Sub-paragraph 10.8.3-2 has been amended as follows.

2 Where it may create a dangerous condition only when the pressure vessel is exposed to a fire or other unexpected source of external heat, a pressure relieving device is to be provided to prevent the pressure from exceeding to more than 1.2 times the design pressure. However, if an air reservoir which is not used for a general emergency alarm system required by the paragraph 4.2, Regulation 6, Chapter III, the Annex to SOLAS Convention is provided with a fusible plug with melting point not exceeding 150°C to release the pressure automatically in the case of a fire, the pressure relieving device may be omitted.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

- 1.** The effective date of the amendments is 1 December 2008.
- 2.** Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction is before the effective date.

Chapter 13 PIPING SYSTEMS

13.5 Bilge and Ballast Pipings

13.5.7 Bilge Suction Arrangement in Engine Room

Sub-paragraph 13.5.7-3 has been amended as follows.

3 Where the double bottom plating extends to the ship's sides, bilge wells are to be ~~formed at both wings~~ placed at each side so far as is reasonable and practicable, and one branch bilge suction and one direct bilge suction are to be provided in each bilge well.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 December 2008.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships other than ships for which the date of contract for construction is on and after the effective date.
3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to ships other than ships for which the date of contract for construction is on and after the effective date upon request by the owner.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part D

Machinery Installations

GUIDANCE

2008 AMENDMENT NO.2

Notice No.37 29th May 2008

Resolved by Technical Committee on 1st February 2008

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

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

Part D MACHINERY INSTALLATIONS

Amendment 2-1

**Annex D1.1.3-3 GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF
AZIMUTH THRUSTERS**

1.2 Class Surveys

1.2.1 Classification Survey

Sub-paragraph -1(1)(n) has been renumbered to -1(1)(p).

Sub-paragraph -1(1)(n) and (o) have been added as follows.

- (n) When a vibration measurement system specified in 1.2.2-5(1) is being used, the following documents i) and ii):
 - i) Function description for vibration measurement system
 - ii) Management manual including the following 1) through 3)
 - 1) List of the bearings for vibration measurement and measurement points.
 - 2) Guidance for the measurement (including the way for taking signals from the casing)
 - 3) Guidance for the analysis and the evaluation of the measurement result
- (o) When a Fe-density measurement system specified in 1.2.2-5(2) is being used, the following documents i) and ii):
 - i) Function description for the Fe-density measurement system
 - ii) Management manual including the following 1) through 3)
 - 1) Guidance for the lubricating oil sampling
 - 2) Guidance for the Fe-density measurement
 - 3) Guidance for the analysis and the evaluation of the measurement result
- ~~(n)~~(p) Other considered to be necessary by the Society

Paragraph 1.2.2 has been amended as follows.

1.2.2 Periodical Survey

1 Annual Surveys

The following tests (1) and (2) are to be carried out. When instruments specified in -5(1) and (2) are being used, the data and the result of the analysis are to be evaluated before the survey and are to be retained on board at all times.

(1) General examinations

The general conditions of thrusters are to be ascertained that they are placed in good order.

(2) Performance tests

- (a) Performance tests of the azimuth steering gear are to be carried out.
- (b) Tests on the functioning of alarm and safety devices, and indication devices for azimuth angle, propeller speed and direction of rotation and pitch position, and running indicator of electric motor for azimuth steering gear are to be carried out.
- (c) Tests on the functioning of control devices specified in **1.2.1-3(1)(b)** are to be carried out.
- (d) Function tests on the arrangements specified in **1.10.1** are to be carried out. (Running test on the discharging device for mentioned in **1.10.1-1** needs not to be carried out.)

2 Intermediate Surveys

General examinations and performance tests specified in **-1** are to be carried out.

3 Special Surveys

General examinations and performance tests specified in **-1** are to be carried out, and inspection for the supporting part of the azimuth steering gear is to be carried out.

4 Docking Surveys

- (1) Visual inspection of steering column, propeller pod and propeller is to be carried out.
- (2) Examinations on the sealing devices for azimuth steering gear and propeller shaft are to be carried out.
- (3) Measurement of the wear down of the bearing is to be carried out. (Except when roller bearing is used as the bearing for propeller shaft)

5 Propeller shaft survey

Examinations specified in **Chapter 8, Part B of the Rules** are to be carried out. When roller bearings are used for the propeller shaft bearings and where either a propeller shaft Kind IC or a Propeller Shaft Condition Monitoring System (PSCM) is being used, the system specified in the following (1) or (2) may be used instead of the temperature sensors and the temperature recorder specified in **D6.2.11(2)(a)** and **B8.1.3-1(2)**. However, where the system is used, the following requirements specified in (3) are to be satisfied.

When using propeller shaft Kind IC, lubricating oil sampling and analysis are to be regularly carried out as specified in **8.1.3(1), Part B of the Rules**.

- (1) Vibration measurement system to measure vibration of power transmission system in the azimuth thrusters specified in the following (a) through (c). Where the system is fixed type, the environmental tests specified in **18.7.1(1), Part D** 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 described in the guidance for measurement in the management manual specified in **1.2.1-1(1)(n)ii**.
 - (c) A trend display and frequency analysis of the measurement data is to be provided.
- (2) Fe-density measurement system of lubricating oil in the azimuth thrusters specified in the following (a) through (c). Where the system is fixed type, the environmental tests specified in **18.7.1(1), Part D** are to be carried out.

- (a) Sampling is to be carried out regularly.
- (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 at sea as much as possible. Where the sampling can only be conducted at port, the sampling is to be carried out in 30 *minutes* after the azimuth thrusters stop.

(3) Measurement data

- (a) The executive management (hereinafter referred to as “management”) is to use their experience and knowledge to determine the criteria for each parameter for the ship (including the criteria for alarm and abnormal conditions).
- (b) The management is to submit the analysis records with the data after every analysis of the sample oil. In the documents, the management’s opinion, such as on the necessity for withdrawing the azimuth thrusters, is to be included.

6 Planned Machinery Surveys

The following examinations are to be carried out according to the survey programs specified in **Chapter 9, Part B of the Rules**. The survey specified in the following (1) and (2) may be carried out in the same interval as the interval specified in -5 above without regard to 1.1.3-2, Part B of the Rules.

- (1) The open-up examination of gears, gear shaft, shaft coupling, bearing and clutch for propulsion
These items are to be opened up to the Surveyor’s satisfaction.
- (2) The open-up examination of gears, gear shaft, shaft coupling and bearing for steering
These items are to be opened up to the Surveyor’s satisfaction.
- (3) The open-up examination of hydraulic pump and hydraulic motor for azimuth steering gear
- (4) The open-up examination of lubricating oil pump
- (5) The open-up examination of coolers
- (6) The open-up examination of other items considered to be necessary by the Society

7 Occasional Surveys

Any abnormal conditions observed from the measurement data of the system specified in -5(1) and (2) are to be reported to the Society immediately. Upon review of the reports, the Society may request an occasional survey when considered necessary.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

- 1. The effective date of the amendments is 29 May 2008.
- 2. Notwithstanding the amendments to the Guidance, the current requirements apply to the surveys for which the application is submitted to the Society before the effective date.
- 3. Notwithstanding the provision of preceding 2., the amendments to the Guidance may apply to the surveys for which the application is submitted to the Society before the effective date upon request by the owner.

D2 DIESEL ENGINES

D2.4 Safety Devices

Paragraph D2.4.3 has been amended as follows.

D2.4.3 Protection against Crankcase Explosion

1 The wording “explosion relief valves of approved type” in 2.4.3-1, Part D of the Rules means those valves approved by the Society in accordance with Chapter 10, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.

~~**2**~~ The total volume of the stationary parts within the crankcase may be discounted in estimating the crankcase gross volume specified in **2.4.3-1, Part D of the Rules**. Rotating and reciprocating components are to be included in the gross volume.

~~**3**~~ The installation and maintenance manual specified in **2.4.3-1(5), Part D of the Rules** is to contain the following information:

- (1) Description of valve with detail of function and design limits
- (2) Copy of type test certification
- (3) Installation instructions
- (4) Maintenance in service instructions to include testing and renewal of any sealing arrangements
- (5) Actions required after a crankcase explosion

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

- 1.** The effective date of the amendments is 1 July 2008.

D12 PIPES, VALVES, PIPE FITTINGS AND AUXILIARIES

D12.5 Construction of Auxiliary Machinery and Storage Tanks

D12.5.1 General

Sub-paragraph -2 has been deleted.

1 Plate thickness of fuel oil storage tank

The “small tanks” specified in **12.5.1-2, Part D of the Rules** means fuel oil storage tanks with a capacity of 1,000 *litres* or less.

~~2 Equipment for gas welding~~

~~(1) Gas bottles are to be of the ones verified by the recognized standard.~~

~~(2) Location of gas bottles is to be as specified below:~~

~~(a) Gas bottles are not to be located in machinery spaces of category A and accommodation spaces.~~

~~(b) Acetylene gas bottles are to be located in the area where the temperature can be maintained at 38 °C or less. Also, the electrical installations provided within the store room of acetylene gas bottles are to be as specified in the requirements, of **2.1.3-7, Part H of the Rules**.~~

~~(c) Gas bottles are to be stored in areas not exposed to direct sun beam and also safe against waves, flame and high temperature.~~

~~(d) Except when located in a store room, gas bottles are to be placed in areas sufficiently distant from accommodation spaces and openings from which hydrocarbon gases, etc. are likely to flow out.~~

~~(e) Gas bottles are to be stored at areas of good ventilation free from stagnation of leaked gases.~~

~~(f) The store room of gas bottles is to have such a construction as to allow access only from the weather deck.~~

~~(3) Gas bottles are to be so stored that the safety against ship motions and vibrations is ensured, and they should stand upright as far as practicable. Acetylene bottles and oxygen bottles are to be store apart to the extent practicable. Further, means are to be provided so that gas bottles can be transferred quickly in case of fire.~~

~~(4) In case where permanent piping is arranged between the gas bottles and working area, the following requirements are to be complied with:~~

~~(a) Steel pipes with corrosion protection are to be used for acetylene gas piping, and steel or copper pipes are to be used for oxygen gas piping. Use of flexible joints made of non-metal material ensleeved in metal sheath in part of the piping may be accepted.~~

~~(b) No cast iron is to be used as the material of valves and pipe fittings. Further, copper or copper alloy with a copper content exceeding 62% is not to be used as the material of valves and pipe fittings in the acetylene gas piping.~~

~~(c) The procedures of piping arrangement are to be as specified below:~~

~~i) Acetylene gas piping and oxygen gas piping are not to be led through the accommodation spaces and enclosed spaces which are susceptible to fire.~~

- ~~ii) On acetylene gas piping and oxygen gas piping, stop valves are to be fitted at adequate locations of the penetrations through the casing of the store room and working area.~~
- ~~iii) Joints between pipes and pipe fittings are to be of welded joint or flange joint as far as practicable.~~
- ~~iv) For clear distinction of the acetylene gas piping system and oxygen gas piping system, the piping systems are to be provided with adequate means of identification.~~
- ~~(5) In case where rubber pipes are used between gas bottles and working area, the rubber pipes are to be of the ones complied with the requirements of any recognized standard deemed adequate by the Society according to the type of gas involved.~~
- ~~(6) After completion of shipboard installation, piping systems are to be subjected to air tightness test at a pressure of 1.25 times or more of the maximum working pressure of the pressure regulator.~~

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 July 2008.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction is before the effective date.
3. Notwithstanding the provision of preceding 2., the amendments to the Guidance may apply to ships for which the application is submitted to the Society before the effective date upon request by the owner.