08-380

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part B Class Surveys

Rules for the Survey and Construction of Steel Ships
Part B 2008 AMENDMENT NO.2
Guidance for the Survey and Construction of Steel Ships
Part B 2008 AMENDMENT NO.3

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

ClassNK
NIPPON KAIJI KYOKAI

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part B Class Surveys

2008 AMENDMENT NO.2

Rule No.36 29th May 2008

Resolved by Technical Committee on 1st February 2008

Approved by Board of Directors on 26th February 2008

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 B CLASS SURVEYS

Amendment 2-1

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey During Construction

2.1.2 Submission of Plans and Documents for Approval

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

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

(1) (Omitted)
(2) (Omitted)
(3) Ships carrying liquefied gases in bulk
  (a) Manufacturing specifications for cargo tanks, insulations and secondary barriers (including welding procedures; inspection and testing procedures for welds and cargo tanks; properties and installation procedures of insulation materials and secondary barriers; and working standards)
  (b) Details of cargo tank construction
  (c) Arrangement of cargo tank accessories including details of fittings inside the tanks
  (d) Details of cargo tank supports, deck portions through which cargo tanks penetrate, and their sealing devices
  (e) Details of secondary barriers
  (f) Specifications and standards of materials (including insulations) used for cargo piping system in connection with design pressure and/or temperature
  (g) Specifications and standards of materials of cargo tanks, insulations, secondary barriers and cargo tank supports
  (h) Layout and details of attachment for insulations
  (i) Constructions of cargo pumps, cargo compressors and their prime movers
  (j) Piping diagrams of cargo hold, cargo gauging system, and cargo tank venting system
  (k) Constructions of main parts of refrigeration systems
  (l) Piping diagrams of refrigerant for refrigeration systems
  (m) Bilge arrangements and ventilation system in hold spaces or interbarrier spaces,

cargo pump room, cargo compressor room, and cargo control room

(n) Arrangement of sensors for gas detectors, temperature indicators, pressure gauges

(o) Diagrams of inert gas lines and details of pressure adjusting devices, where hold spaces or interbarrier spaces are filled by inert gases

(p) Details of pressure relief device and drainage systems for leakage of liquefied cargo in hold spaces or interbarrier spaces

(q) Sectional assembly, details of nozzles, fitting arrangement and details of fittings for various pressure vessels

(r) Details of valves for special purposes, cargo hoses, expansion joints, filters, etc. for cargo piping system

(s) Piping diagram, constructions and particulars of utilization units, where cargo is used as fuel

(t) Electric wiring plans and a table of electrical equipments in dangerous spaces

(u) Arrangement of earth connections for cargo tank, pipe lines, machinery, equipment, etc.

(v) Plans showing dangerous spaces

(w) Plans showing arrangements for personnel protection (the locations, numbers, sizes, and types of protective equipment, safety equipment, stretcher and medical first-aid equipment; where deemed necessary, the locations, numbers, sizes, and types of respiratory protection for emergency escape purpose, the location of decontamination showers, an eye-wash and emergency shelters, and the type of equipment in the cargo control room)

(x) For independent tank of Type *B*, programs of the non-destructive test for periodical surveys

(y) For membrane and semi-membrane tanks and internal insulation tanks, programs of the examination and testing of cargo containment systems for periodical surveys

(~~x~~z) Plans and documents other than those in **(a)** through **(~~v~~y)** required to be submitted in **Part N**

(4) Ships carrying dangerous chemicals in bulk
(Omitted)

(5) Plans and documents for in-water surveys specified in **6.1.2-2**

(6) Other plans and documents not specified in **(1)** through **(5)** which are deemed necessary by the Society

2.1.6 Documents to be Maintained on Board

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

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

(1) Documents approved by the Society or their copies

((a) to (i) and (l) to (n) are omitted.)

(j) For independent tank of Type *B*, ~~Programs for~~ programs of the non-destructive test for ~~independent tank of Type *B*~~ periodical surveys (**Table B5.27**)

(k) For membrane and semi-membrane tanks and internal insulation tanks, ~~Programs for~~ programs of the examination and testing of cargo containment systems for ~~membrane and semi-membrane tanks and internal insulation tanks~~ periodical surveys (Note (*1) to **Table B5.27**)

(2) (Omitted)

(3) (Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

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

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships other than ships for which the application for Classification Survey during Construction is submitted to the Society on and after the effective date.

Amendment 2-2

Chapter 5 SPECIAL SURVEYS

5.4 Special Requirements for Ships Carrying Liquefied Gases in Bulk

Table B5.27 has been amended as follows.

Table B5.27 Special Requirements for Ships Carrying Liquefied Gases in bulk

Items	Examinations
1 Cargo tanks	The following examinations are to be carried out [*1]: (a) An internal examination of all cargo tanks (b) A visual examination of insulation[*2] or cargo tank surface (if insulation is not fitted) Special attention is to be paid to chocks, supports, keys and other parts of the tank foundations. Removal of insulation may be required where deemed necessary by the Surveyor. (c) Thickness measurements for cargo tank plate (where deemed necessary by the Surveyor) (d) Non-destructive test for independent tank of Type *B* in accordance with the approved program This program is to be prepared according to the cargo tank design. Cargo tanks other than independent tanks of Type *B* are to be examined by non-destructive tests on welded connections of the tank shell, main structural members and other parts liable to bear high stress[*3]. (e) Leak tests of all cargo tanks However, the leak test of membrane tanks, semi-membrane tanks and independent tanks below deck may be omitted, if it is verified by the log book or other proper means that gas detecting devices are in normal condition and no leak is recorded. Where there is any doubt on the integrity of any of the cargo tanks as a result of the examinations (a) through (e) above, the tank is to be tested under the pressures specified below. For independent tanks of Type *C*: Not less than 1.25 *times* maximum allowable design pressure (hereinafter referred to as *MARVS*) of pressure relief valves For independent tanks of Type *A* and *B* and integral tanks: Appropriate pressure according to the cargo tank design For independent tanks of Type *C*, either of the following tests (i) or (ii) is to be carried out at every second Special Survey in addition to examinations (a) through (e). (i) Tests at a pressure 1.25 *times MARVS*, and thereafter, the non-destructive test stipulated in (d) (ii) Non-destructive test according to the program prepared for the cargo tank design[*4]

2	Hold spaces and secondary barriers	・Tank supporting and surrounding hull structures in hold spaces, secondary barriers and their insulation are to be visually examined. ・For membrane containment systems, it is to be verified that secondary barriers keep a specific level of tightness required in the system design in accordance with programs approved in advance. For membrane containment systems with glued secondary barriers, the values obtained are to be compared with previous results or results obtained at newbuilding stage. If significant differences are observed, an evaluation of them and additional testing are to be carried out as necessary. ・For other cargo containment systems, ~~In~~ in cases where there is any doubt about integrity of secondary barriers, the integrity is to be verified by pressure or vacuum test or other proper means.[*5]
3	Venting system for cargo tanks	Pressure relief valves for cargo tanks are to be overhauled, readjusted, performance-tested and sealed. Pressure/vacuum relief devices and associated safety systems for interbarrier spaces and hold spaces are to be examined, overhauled and tested depending on their design.
4	Cargo and process piping	Examinations (a) and (b) are to be carried out. Removal of insulation may be required where deemed necessary by the Surveyor. (a) Where deemed necessary by the Surveyor; whole or a part of the valves and associated fittings are to be overhauled, or a pressure test at a pressure 1.25 *times MARVS* is to be carried out and after the pipes that were removed are reinstalled, a leak test is to be carried out (b) Pressure relief valves are to be visually examined and whole or a part of these valves are to be overhauled, readjusted, performance tested and sealed.
5	Cargo handling equipment	Examinations and tests (a) through (c) are to be carried out. (a) Cargo pumps, cargo gas compressors and gas blowers, and their prime movers are to be overhauled and performance tests for safety devices are to be carried out. Overhaul of electric motors as prime movers may be dispensed with.[*6] (b) Heat exchangers, pressure vessels and evaporators are to be overhauled and pressure relief valves are to be performance tested. If an internal examination of vessels is impracticable, a pressure test of vessels and a performance test of pressure relief valves are to be carried out.[*6] (c) The following tests (i) through (iii) are to be carried out for refrigerating equipment. (i) Overhaul of pumps and compressors and performance tests of pressure vessels such as condensers, evaporators, inter-coolers, oil separators and relief valves[*6] (ii) Leak test of pressure vessels and heat exchangers at a pressure of not less than 90% of the set pressure of relief valves (iii) Leak test of refrigerant piping system at a pressure of not less than 90% of set pressure of relief valves
6	Electrical installations in hazardous areas	Examinations specified in item 2 for tankers of **Table B5.25** are to be carried out.

Note)

(*1) For membrane and semi-membrane tanks and internal insulation tanks, examination and testing are to be carried out in accordance with programs specially prepared according to approved methods for each tank system.

(*2) If visual examination of the insulation of tanks is impossible, the surrounding structural members are to be examined for cold spots when the cargo tanks are cooled. However, where integrity of cargo tanks and their insulation is verified by the cargo log book, the examination of cold spots may be omitted.

(*3) Parts liable to bear high stress:
- cargo tank supports and anti-rolling / anti-pitching devices
- web frames or stiffening rings
- swash bulkhead boundaries
- dome and sump connections to tank shell
- foundations for pumps, towers, ladders, etc.
- pipe connections

(*4) If an approved non-destructive test program does not exist, then a non-destructive test of at least 10 % of the length of the welded connections in each of the highly stressed areas below is to be conducted. This test is to be carried out from both inside and outside of the tank as appropriate and insulation is to be removed, as necessary.
- cargo tank supports and anti-rolling / anti-pitching devices
- stiffening rings
- Y-connections between tank shell and a longitudinal bulkhead of bilobe tanks
- swash bulkhead boundaries
- dome and sump connections to tank shell
- foundations for pumps, towers, ladders, etc.
- pipe connections

(*5) ~~If visual examination of secondary barriers and insulation is impossible due to the tank having a membrane,~~ Appropriate pressure or vacuum tests ~~approved in advance~~ and examination for cold spots are to be carried out. However, where integrity of insulation is verified by the log book, examination for cold spots may be omitted.

(*6) Equipment that has the open inspection at Planned Machinery Surveys need only be visually examined at Special Surveys.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

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

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

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part B Class Surveys

2008 AMENDMENT NO.3

Notice No.37 29th May 2008

Resolved by Technical Committee on 1st February 2008

Notice No.37 29th May 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 B CLASS SURVEYS

B3 ANNUAL SURVEYS

B3.4.2 Examinations

Sub-paragraph -3 has been added as follows.

1 The Examinations stipulated in item 1 of **Table B3.9, Part B of the Rules** to be carried out at the first Annual Survey after construction for ships carrying liquefied gases in bulk, may be dispensed with provided the ship complies with the provisions specified in **(1)** through **(3)** below:

(1) The cargo containment system has enough records of good performance
However, where the system has sustained substantial damage (e.g. fracturing or deformation in tanks) or is the first of its type made by the manufacturer, the examination cannot to be omitted.

(2) The records specified in **(a)** through **(c)** are available on board
(a) Records of gas detection and temperature measurement in hold spaces
(b) Running record of reliquefication plants
(c) Records of cargo tank pressure

(3) It is possible to confirm the cargo containment system has not malfunctioned from checking the records specified in **(2)** above and interviewing the master

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

3 In application of item 5 of **Table B3.9, Part B of the Rules**, for membrane containment systems, proper operation of the nitrogen control system for insulation and interbarrier spaces is to be confirmed to the Surveyor by the Master.

B5 SPECIAL SURVEYS

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

Paragraph B5.4.2 has been amended as follows.

B5.4.2 Examinations

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

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

EFFECTIVE DATE AND APPLICATION

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

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