CHINA CLASSIFICATION SOCIETY

CCS Rule Change Notice For:

Rules for Construction of Ocean-going Steel Fishing Vessels

Version: 2023RCN No.2

Effective date: 1 January, 2024

Beijing

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PART 1 HULL

CHAPTER 1 GENERAL

Section 7 COMPARTMENT TIGHTNESS TEST

1.7.2 Application

1.7.2.2 The testing of structures not listed in Table ~~1.7.2.2~~ 1.7.4.2 are to be specially considered.

1.7.3 Test types and definitions

1.7.3.1 The following two types of tests are specified in this requirement:

(2) Leak test:A test to verify the tightness of a boundary. Unless a specific test is indicated, this may be a hydrostatic/hydropneumatic test or an air test. A hose test may be considered an acceptable form of leak test for certain boundaries, as indicated by Footnote ~~3~~4 of Table ~~1.7.2.2~~1.7.4.2.

1.7.4 Test procedures

1.7.4.1 General

(1) Tests are to be carried out in the presence of a Surveyor at a stage sufficiently close to the completion of work with all hatches, doors, windows, etc. installed and all penetrations including pipe connections fitted, and before any ceiling and cement work is applied over the joints. Specific test requirements are given in 1.7.4.4 and Table ~~1.7.2.2~~1.7.4.2. For the timing of the application of coating and the provision of safe access to joints, see 1.7.4.5, 1.7.4.6 and Table 1.7.4.1~~ (1)~~.

1.7.4.2 Structural test procedures

(1) Type and time of test

① Where a structural tests is specified in Table ~~1.7.2.2~~1.7.4.2. a hydrostatic test in accordance with1.7.4.4 (1) will be acceptable. Where practical limitations (strength of building berth, liquid density of liquid, etc) prevent the performance of a hydrostatic test, a hydropneumatic test in accordance with 1.7.4.4(2) may be accepted instead.

Test requirements for tanks and boundaries **Table 1.7.4.2**

No.	tanks or boundaries to be tested	Test type	Test head or pressure	Remark
1	Double bottom tanks	Leak and structural[1]	The greater of[10]: - top of the overflow[9] - to ~~2.4~~($0.3D^3$+0.76)m above top of tank[2], or - to bulkhead deck	
2	Double bottom voids[5]	Leak	See 1.7.4.4 (4) through 1.7.4.4 (6), as applicable	including pump room double bottom and bunker tank protection double hull required by

No.	tanks or boundaries to be tested	Test type	Test head or pressure	Remark
				MARPOL Annex I
3	Double side tanks	Leak and structural[1]	The greater of[10]: - top of the overflow[9], - to ~~2.4~~($0.3D^3$+0.76)m above top of tank[2], or - to bulkhead deck	
4	Double side voids	Leak	See 1.7.4.4 (4) through 1.7.4.4 (6), as applicable	
5	Deep tanks other than those listed elsewhere in this table	Leak and structural [1]	The greater of[10]: - top of the overflow[9], or - to ~~2.4~~($0.3D^3$+0.76)m above top of tank[2]	
6	Peak tanks	Leak and structural[1]	The greater of[10]: - top of the overflow[9], or - to ~~2.4~~($0.3D^3$+0.76)m above top of tank[2]	After peak to be tested after installation of stern tube
7	(1) Fore peak spaces with equipment	Leak	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
	(2) Fore peak voids	Leak	See 1.7.4.4 (4) through 1.7.4.4 (6), as applicable	
	(3) After peak space with equipment	Leak	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
	(4) Afterpeak voids	Leak	See 1.7.4.4 (4) through 1.7.4.4 (6), as applicable	After peak to be tested after installation of stern tube
8	Cofferdams	Leak	See 1.7.4.4 (4) through1.7.4.4 (6), as applicable	
9	(1) Watertight bulkheads	Leak	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable[7]	
	(2) Superstructure end bulkheads	Leak	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
10	Watertight doors below working deck	Leak [6, 7]	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
11	Double plate rudder blades	Leak	See 1.7.4.4 (4) through 1.7.4.4 (6), as applicable	
12	Shaft tunnels clear of deep tanks	Leak[4]	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
13	Shell doors	Leak [4]	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
14	Weathertight hatch covers and closing	Leak[4,7]	See 1.7.4.4 (3) through1.7.4.4 (6), as applicable	Hatch covers closed by tarpaulins and

No.	tanks or boundaries to be tested	Test type	Test head or pressure	Remark
	appliances			battens excluded
15	Dual purpose tanks/dry cargo hatch covers	Leak[4,7]	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	~~Hatch covers closed by tarpaulins and battens excluded~~
16	Chain lockers	Leak and structural[1]	Top of chain pipe	
17	L.O. sump. tanks and other similar tanks/spaces under main engines	Leak[8]	See 1.7.4.4 (3) through 1.7.4.4 (6), as applicable	
18	Ballast ducts	Leak and structural[1]	The greater of: - Ballast pump maximum pressure, or - Setting of any pressure relief valve	
19	Fuel Oil tanks	Leak and structural[1]	The greater of[10]: - Top of the overflow[9]; - to ~~2.4~~(0.3D^3+0.76)m above top of tank[2], or - to top of tank[2] plus the design vapour pressure ~~setting of any pressure relief valve~~, or - to bulkhead deck	
20	Fuel oil overflow tanks not intended to hold fuel	Leak and structural[1]	The greater of[10] - top of the overflow[9], - to (0.3D^3+0.76) m above top of tank[2], or - to bulkhead deck	

Note

1: Refer to 1.7.4.2 (2).

2: The top of a tank is the deck forming the top of the tank, excluding any hatchways.

3: *D* is the depth of the ship.

4: Hose Test may also be considered as a medium of the test. See 1.7.3.2.

5: Including duct keels and dry compartments, and/or oil fuel tank protection and pump room bottom protection arranged in accordance with the provisions of MARPOL Annex I, Chapter 3, Part A regulation 12A and Chapter 4, Part A, regulation 22 respectively.

6: Where water tightness of a watertight door has not been confirmed by prototype test, testing by filling watertight spaces with water is to be carried out (see SOLAS II-1/16.2 and Notification MSC.1/ Circ.~~1176~~ 1572/Rev.1).

7: As an alternative to the hose testing, other testing methods listed in 1.7.4.4 (7) through1.7.4.4 (9) may be applicable subject to adequacy of such testing methods being verified. (See SOLAS II-1/11.1). For watertight bulkheads (item 9(1)) alternative to the hose testing may only be used where a hose test is not practicable.

8: Where L.O. sump tanks and other similar spaces under main engines intended to hold liquid form part of

the watertight subdivision of the ship, they are to be tested as per the requirements of Item 5, Deep tanks other than those listed elsewhere in this table.

9: The 'top of the overflow' is defined as being the top of any overflow system which is used to prevent overfilling of a tank. Such system can be an overflow pipe, airpipe, intermediate tank. For gravity tanks (i.e. sewage, grey water and similar tanks, not filled with pumps) the top of the overflow is to be taken as the highest point of the filling line. Where, gauging devices are not considered equivalent to an overflow system with the exception of fuel oil overflow tanks not intended to hold fuel which have been fitted with a level alarm. Where a tank is fitted with multiple means of preventing overfilling, the decision on which overflow system is to be used to determine the test head is to be based on the highest point to which the liquid may rise in service.

10: The minimum test pressure need not be taken greater than 2.4 m above the top of the tank. Where the top of the tank refer to note 2.

(2) Testing schedule for new construction or major structural conversion

~~① Tanks which are intended to hold liquids, and which form part of the watertight subdivision of the ship, shall be tested for tightness and structural strength as indicated in Table 1.7.2.2.~~

① The tank boundaries are to be tested from at least one side. The tanks for structural test are to be selected so that all representative structural members are tested for the expected tension and compression.

② Structural tests are to be carried out for at least one tank of a group of tanks having structural similarity (i.e. same design conditions, alike structural configurations with only minor localised differences determined to be acceptable by the attending Surveyor) on each vessel provided all other tanks are tested for leaks by an air test. The acceptance of leak testing using an air test instead of a structural test does not apply to the boundaries of tanks for segregated fishing catches or pollutant cargoes.

③ Additional tanks may require structural testing if found necessary after the structural testing of the first tank.

④ For tanks which are less than 2 m^3 in volume, structural testing may be replaced by leak testing.

⑤ Where the structural adequacy of the tank and spaces of a vessel were verified by the structural testing required in this Section, subsequent vessels in the series (i.e. sister ships built from the same plans at the same shipyard) may be exempted from structural testing of tanks, provided that:

a water-tightness of boundaries of all tanks and spaces is verified by leak tests and thorough inspections are carried out;

b structural testing is carried out for at least one tank or space among all tanks of each sister vessel;

c additional tanks and spaces may require structural testing if found necessary after the structural testing of the first tank or if deemed necessary by the attending Surveyor.

⑥ Sister ships built (i.e.keel laid) two years or more after the delivery of the last ship of the series, may be tested in accordance with ~~1.7.4.2 (2)~~ above-mentioned ⑤ of this Section at the discretion of CCS, provided that:

a general workmanship has been maintained (i.e. there has been no discontinuity of shipbuilding or significant changes in the construction methodology or technology at the yard, shipyard personnel are appropriately qualified and demonstrate an adequate level of workmanship

as determined by CCS); and;

b an NDT plan is implement and evaluated by CCS for the tanks not subject to structural tests. Shipbuilding quality Standards for of the hull structure during new constructed are to be reviewed and agreed during the kick-off meeting. ~~Structural fabrication is to be carried out in accordance with Appendix 2 to CHAPTER 4, PART ONE, VOLUME ONE of Rules for Classification of Sea-going Steel Ships, or a recognized fabrication standard which has been accepted by CCS prior to the commencement of fabrication/construction.~~ The work is to be carried out in accordance with the Rules and under survey by CCS.

~~⑦ The watertight boundaries of spaces (except chain lockers) other than tanks for structural testing may be exempted, provided that the water-tightness of boundaries of exempted spaces is verified by leak tests and inspections.~~

~~⑧ Tanks which do not form part of the watertight subdivision of the ship, may be exempted from structural testing provided that the watertightness of boundaries of exempted spaces is verified by leak test and inspections.~~

1.7.4.3 Leak test procedures

(1) For the leak tests specified in Table ~~1.7.2.2~~1.7.4.2, tank air tests, compressed air fillet weld tests, vacuum box tests in accordance with 1.7.4.4(4) through 1.7.4.4(6), or their combination, will be acceptable. Hydrostatic or hydropneumatic tests may also be accepted as leak tests provided that 1.7.4.5, 1.7.4.6 and 1.7.4.7 are complied with. Hose tests will also be acceptable for such locations as specified in Table ~~1.7.2.2~~1.7.4.2, Footnote ~~③~~4, in accordance with 1.7.4.4 (3)

(2) The application of the leak test for each type of welded joint is specified in Table 1.7.4.1 ~~(1)~~.

(3) Air tests of joints may be carried out in the block stage provided that all work on the block that may affect the tightness of a joint is completed before the test. See also 1.7.4.5(1) (for the application of final coatings)、1.7.4.6 (for the safe access to joints) and the summary in Table 1.7.4.1 ~~(1)~~.

1.7.4.4 Test methods

(1) Hydrostatic test

① ~~Hydropneumatic tests, where approved, are to be such that the test condition, in conjunction with the approved liquid level and supplemental air pressure, will simulate the actual loading as far as practicable. The requirements and recommendations for tank air tests in 1.7.4.4 (4) will also apply to hydropneumatic tests. See also 1.7.4.7~~Unless another liquid is approved, hydrostatic tests are to consist of filling the space with fresh water or sea water, whichever is appropriate for testing, to the level specified in 1.7.4.2. See also 1.7.4.7.

(2) Hydropneumatic test

① ~~Unless another liquid is approved, hydrostatic tests are to consist of filling the space with fresh water orsea water, whichever is appropriate for testing, to the level specified in 1.7.4.4 (4) . See also 1.7.4.7.~~Hydropneumatic tests, where approved, are to be such that the test condition, in conjunction with the approved liquid level and supplemental air pressure, will simulate the actual loading as far as practicable. The requirements and recommendations for tank air tests in 1.7.4.4 (4) will also apply to hydropneumatic tests. See also 1.7.4.7.

(4) Tank air test

③ Arrangements involving the use of two calibrated pressure gauges to verify the required

test pressure may be accepted taking into account the provisions in F5.1 and F7.4 of IACS Recommendation 140, “Recommendation for Safe Precautions during Survey and Testing of Pressurized Systems”.

1.7.4.5 Application of coating

(1) Final coating

③ For all other joints, the final coating is to be applied after the completion of the leak test of the joint. See also Table 1.7.4.1. ~~(1)~~

1.7.4.6 Safe access to joints

For leak tests, safe access to all joints under examination is to be provided. See also Table 1.7.4.1. ~~(1)~~

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PART 2 ENGINE AND FISHING MACHINERY EQUIPMENT

CHAPTER 5 DIESEL ENGINES

Section 8 ALARMS AND SAFEGUARDS FOR EMERGENCY DIESEL ENGINES

5.8.1 General requirements

5.8.1.2 This Section applies to diesel engines required to be immediately available in an emergency and capable of being controlled remotely or automatically operated. The engines use distillate marine fuels covered by ISO 8217:2017.

5.8.2 Alarms and safeguards

Alarms and Safeguards for Emergency diesel engines **Table 5.8.2.5**

Parameter	Alarm activation ~~≥220kW~~	~~≤220kW~~Shutdown with alarm
Lubricating oil inlet pressure	Low	~~Low~~
Lubricating oil inlet temperature①	High	
Temperature of cooling water or cooling air	High	~~High~~
Pressure or flow of cooling water①	Low	
Overspeed activated①	~~Alarm and shutdown for~~ overspeed	Shutdown
Fuel oil leakage from high pressure pipes (fuel injection pipes and common rails)	Oil leakage	~~Oil leakage~~
Oil mist concentration in crankcase (activation of the temperature monitoring systems or equivalent devices of: -the engine main and crank bearing oil outlet; or -the engine main and crank bearing)②	High	

Note: ① for engines having a power of or more than 220 kW.

~~①~~② only for engines having a power of not less than2250kW or a cylinder bore of more than 300mm.