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**GUIDANCE ON PRESSURE TESTING OF BOUNDARIES OF CARGO OIL TANKS
UNDER DIRECTION OF THE MASTER**

1 The Maritime Safety Committee, at its ninety-fifth session (3 to 12 June 2015), with a view to facilitate the global and consistent implementation of testing of cargo oil tanks when this is undertaken under direction of the master, in accordance with the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 (2011 ESP Code), approved the *Guidance on pressure testing of boundaries of cargo oil tanks under direction of the master*, as set out in the annex.

2 Member Governments are invited to bring this circular to the attention of all parties concerned.

ANNEX

GUIDANCE ON PRESSURE TESTING OF BOUNDARIES OF CARGO OIL TANKS UNDER DIRECTION OF THE MASTER

1 Introduction

1.1 The *International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 (2011 ESP Code)* was adopted on 30 November 2011 by resolution A.1049(27) and subsequently made mandatory through amendments to SOLAS regulation XI-1/2 (resolution MSC.325(90)) which entered into force on 1 January 2014. This regulation requires that bulk carriers and oil tankers as defined in the 1974 SOLAS Convention, as amended, shall be subject to an enhanced programme of inspections in accordance with the 2011 ESP Code. The enhanced survey programme shall be carried out during the surveys prescribed by SOLAS regulation I/10.

1.2 This guidance gives information and advice on technical and formal matters related to the required testing of cargo oil tanks when this is undertaken under direction of the master according to the 2011 ESP Code.

1.3 Where the ship is in a shipyard or is under attendance of the Administration/Recognized Organization (RO) surveyor(s) the testing of cargo tanks is to be carried out under the direction, and in the presence, of the Administration/RO surveyor(s). It should be noted that all ballast tanks adjacent to cargo tanks are to be tested by the Administration/RO surveyors.

2 Objective and applicability

2.1 This guidance is prepared as a reference for Administrations/ROs, companies, masters and crews in order to facilitate a common understanding of the procedures for testing of cargo oil tanks when this is undertaken under the direction of the master.

2.2 This procedure applies to all oil tankers to which the 2011 ESP Code is applicable.

3 Testing of cargo oil tanks

3.1 The minimum requirements for cargo tank testing at renewal survey are given in the 2011 ESP Code, annex B, parts A and B, paragraph 2.6.4 and annex 3.

3.2 Tests of the cargo oil tanks carried out under this procedure are to be to the satisfaction of the master.

3.3 Boundaries of cargo tanks are to be tested with liquid to the highest point that the liquid will rise under service conditions. The minimum scope of bulkheads to be tested is to be in accordance with the requirements in the 2011 ESP Code, annex B, parts A and B, annex 3.

3.4 Testing of the boundaries of cargo tanks carried out by the ship's crew under the direction of the master may be accepted by the surveyor provided the following conditions are complied with:

- .1 a tank testing procedure specifying fill heights, tanks being filled and boundaries being tested has been submitted by the owner and reviewed by the Administration or RO prior to the testing being carried out;
- .2 there is no record of leakage, distortion or substantial corrosion that would affect the structural integrity of the tank;
- .3 the tank testing has been satisfactorily carried out within the renewal survey window not more than three months prior to the date of the survey on which the overall or close-up survey is completed;
- .4 the satisfactory results of the testing are recorded in the ship's logbook; and
- .5 the internal and external condition of the tanks boundaries and associated structure are found satisfactory by the surveyor at the time of the overall and close-up survey.

3.5 "Failed test": where the outcome of tank testing reveals structural damage or leakage, the Flag Administration/RO should be advised with immediate effect, and attendance on board by (an) Administration/RO surveyor(s) arranged.

4 Procedure for testing of cargo oil tanks

4.1 In order to comply with the cargo oil pressure testing requirements, section 4.2 or 4.3 below has to be completed.

4.2 *Strength testing using cargo oil*

4.2.1 The required pressure testing condition is to be in accordance with the tank testing procedure reviewed by the Administration/RO (2011 ESP Code, annex B, parts A and B, paragraph 2.6.1.1) but not less than the minimum as stated in section 3.3 above.

4.2.2 In order to test the relevant boundaries, the ship may be loaded in a checker board pattern (figure 1), so that each cargo tank internal bulkhead is subjected to a fully loaded head of pressure provided that the intended loading and stability condition are checked and confirmed by the master.

4.2.3 The ship's logbook is to confirm that paragraph 4.2.2 and section 4.3 below, have been successfully carried out and that it is to be signed by the master.

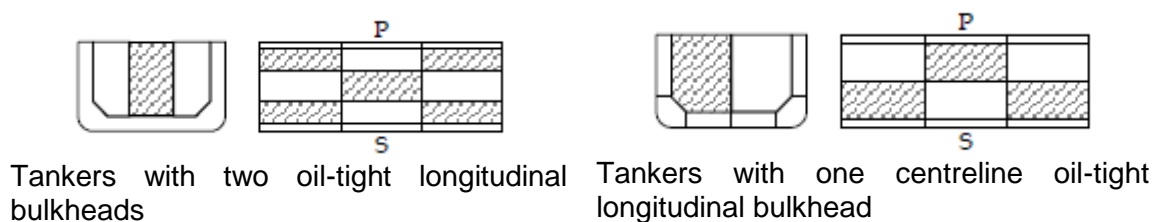


Figure 1 – "Stagger test" – checker board pattern

4.3 Combined strength and tightness testing using ballast water

If practical with respect to the operation of the ship, it is acceptable to carry out combined strength and tightness testing using ballast water provided the relevant requirements in section 4.2 above are complied with and that the relevant tank boundaries are accessible for inspection. The boundaries and associated welds between the tank under test and adjacent cargo oil tanks are to be fully inspected to ensure there is no indication of water leakage across the boundaries.

4.4 General

Water ballast tanks inclusive boundaries facing the cargo tanks, shall be tested in accordance with the 2011 ESP Code. These tests are to be witnessed and all boundaries are to be examined by the Administration/RO attending surveyor.

4.5 Safety

Careful consideration should be given to the *Revised recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

5 Master's inspections, assessment and reporting

5.1 General

The following paragraphs describe the operations that are required of the master when carrying out the inspections of the boundaries of the tank which are to be submitted to a hydrostatic test. All safety precautions and facilities (lighting, ventilation, etc.) should be provided according to the ship's Safety Management System (SMS) documentation and the cargo oil tank testing procedure as approved by the Administration/RO.

5.2 Places to be inspected

5.2.1 All boundaries of the cargo oil tank under testing are to be examined from positions outside of the cargo tank boundaries. Boundaries of commonly shaped tanks are constituted by:

- .1 a transverse aft bulkhead and associated structure;
- .2 a transverse fore bulkhead and associated structure;
- .3 two longitudinal bulkheads and relevant associated structure; and
- .4 an inner bottom plating and associate structure.

5.2.2 Each of these boundaries is the common division between the cargo oil tank under testing and another:

- .1 cargo oil tank, or
- .2 ballast tank/double bottom, or
- .3 fuel oil tank, or
- .4 void space, or pump-room.

5.2.3 The inspection is to verify that:

- .1 the plating and structures of each boundary are not affected by evident geometrical defects, such as deflection/distortion of the structures supporting the plating of the boundaries, when hydrostatically loaded; and
- .2 the tightness of each boundary is not impaired, i.e. no leakages are to appear anywhere on surface of each boundary, especially at the welded joints connecting the plates which constitute the boundary itself.

5.2.4 Each boundary should be closely inspected, noting any defective items from the two categories above.

5.3 Reporting

5.3.1 Following the inspection of all boundaries surrounding the cargo oil tank under test, the master is required to report, in a simple manner, the results of the inspection. The report is to be recorded in the ship's logbook and include all data relevant to:

- .1 identification of the tank subjected to testing;
- .2 identification of the compartments surrounding the cargo tank subject to testing;
- .3 date, time and place of testing;
- .4 ship's loading condition during the testing, including ship trim; and
- .5 outcome of the inspections carried out during the testing.

The report is to be retained on board for the attention of the attending Administration/RO surveyor(s).

5.3.2 Where no deficiencies have been found or noted, the testing of the cargo oil tank can be considered as having a satisfactory outcome.
