GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part U Intact Stability

2019 AMENDMENT NO.1

Notice No.26 14 June 2019

Resolved by Technical Committee on 30 January 2019

Notice No.26 14 June 2019
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 U INTACT STABILITY

U1 GENERAL

U1.1 General

U1.1.2 Special Cases in Application

Sub-paragraphs -3 to -5 have been amended as follows.

(-1 and -2 are omitted.)

3 For container ships of 100m in length and over, notwithstanding the provisions of **2.2, Chapter 2, Part U of the Rules**, Chapter 2.3, Part B of *IMO Res. MSC.*267(85) *"International Code on Intact Stability 2008 (2008 IS Code)"* or other provisions deemed by the Society to be equivalent may apply.

4 In applying the provision of **2.3.1-1, Chapter 2, Part U of the Rules**, the value of l_{w1} may be determined by model tests using the procedure described in *MSC.*1/*Circ.*1200 ~~in cases where deemed acceptable by the Society~~ or by another method deemed by the Society to be equivalent.

5 In applying the provision of **2.3.1-1, Chapter 2, Part U of the Rules**, in cases where a ship corresponds to any of the following **(1)** to **(4)**, the value of θ_1 may be determined by model tests using the procedure described in *MSC.*1/*Circ.*1200 or by another method deemed by the Society to be equivalent.

(1) the ratio *B/D* is not less than 3.5.
(2) *KG/d-1* is equal to or less than -0.3, or equal to or greater than 0.5.
(3) *T* is not less than 20 (seconds).
(4) Other deemed appropriate by the Society.

U1.2 Stability Information

Paragraph U1.2.1 has been amended as follows.

U1.2.1 Stability Information Booklet

The stability information booklet specified in **1.2.1, Part U** of the Rules is to be prepared in accordance with **Annex U1.2.1 "GUIDANCE FOR STABILITY INFORMATION FOR MASTER"** or in accordance other provisions deemed by the Society to be equivalent. Notwithstanding the above, for ships applied **1.1.2, Part U of the Rules**, the requirements for the booklet may be modified. In cases where deemed appropriate by the Society, as an alternative to the stability information booklet, a simplified booklet containing sufficient information to enable the master to safety operate the ship.

U2 STABILITY REQUIREMENTS

U2.1 General

U2.1.1 General

Sub-paragraph -2 has been amended as follows.

1 With respect to preparing the stability curves and heeling moment curves specified in **2.1.1-1, Chapter 2, Part U of the Rules**, the effects of changes in trim during heeling are to be taken into account.
2 In addition to the loading conditions expected throughout the duration of the voyage, ~~A~~all designed loading conditions specified in **2.1.1-1, Chapter 2, Part U of the Rules** are to contain the standard loading condition described in **Annex U1.2.1 "GUIDANCE FOR STABILITY INFORMATION FOR MASTER"** or another standard loading condition deemed by the Society to be equivalent ~~besides loading conditions expected throughout the duration of the voyage~~.
3 For all loading conditions throughout the duration of the voyage, stability is to comply with **2.2** and **2.3, Chapter 2, Part U of the Rules**. For the conditions other than those during voyage (for example, during cargo loading), G_0M is to be always kept positive.

U2.1.2 Calculation on Stability

Sub-paragraph -3 has been amended as follows.

3 The free surface effect is to be assessed ~~as follows~~ in accordance with the following **(1)** to **(10)** or in accordance with other provisions deemed by the Society to be equivalent.
(1) For tanks with fixed filling levels (e.g. liquid cargo, water ballast), the free surface correction is to be determined using the actual filling level of each tank.
(2) For tanks with variable filling levels (e.g. consumable liquids such as fuel oil, diesel oil, and fresh water, and also liquid cargo and water ballast during liquid transfer operations), except as permitted in **(4)** and **(5)**, the free surface correction is to be determined using the maximum value attainable between the filling limits envisaged for each tank, consistent with any operating instructions.
(3) In calculating the free surface effects in tanks containing consumable liquids, it is to be assumed that for each type of liquid at least one transverse pair or a single centreline tank has a free surface and the tank or combination of tanks taken into account is to be those where the effect of free surfaces is the greatest.
(4) Where water ballast tanks, including anti-rolling tanks and anti-heeling tanks, are to be filled or discharged during the course of a voyage, the free surface effects are to be calculated taking into account the most onerous transitory stage relating to such operations.
(5) For ships engaged in liquid transfer operations, the free surface corrections at any stage of the liquid transfer operations may be determined in accordance with the filling level in each tank at that stage of the transfer operation.
(6) Free surface effects are to be considered whenever the filling level in a tank is less than 98% full. Free surface effects need not be considered in cases where a tank is nominally full, i.e. the filling level is 98% or above. However, nominally full cargo tanks are to be corrected for free surface effects at a 98% filling level. In doing so, the correction to initial metacentric

height is to be based on the inertia moment of the liquid surface at a 5° heeling angle divided by displacement, and the correction to righting lever is suggested to be on the basis of the real shifting moment of cargo liquids.

(7) Free surface effects for small tanks may be ignored under the conditions specified in **1.3.10-3(2)(b)ii), Annex U1.2.1 "GUIDANCE FOR STABILITY INFORMATION FOR MASTER"**.

(8) The corrections to the initial metacentric height and to the righting lever curve are to be addressed separately according to the following **(a)** to **(c)**.
   (a) In determining the correction to initial metacentric height, the transverse moments of the inertia of the tanks are to be calculated at a 0° angle of heel according to **(1)** and **(2)** above.
   (b) The righting lever curve may be corrected by any of the following methods in cases where deemed appropriate by the Society:
      i) correction based on the actual moment of fluid transfer for each angle of heel calculated; or.
      ii) correction based on the moment of inertia, calculated at a 0° angle of heel, modified at each angle of heel calculated.
   (c) The corrections **(a)** and **(b)** above may be calculated according to **(6)** above.

(9) Whichever method is selected for correcting the righting lever curve is to be clearly specified in the ship stability booklet. However, in cases where an alternative method for manually calculated loading conditions is specified, an explanation of the differences which may be found in the results as well as an example correction for each alternative are to be included.

(10) The usual remainder of liquids in empty tanks need not be taken into account in calculating corrections in cases where the total of such residual liquids does not constitute a significant free surface effect.

Sub-paragraph -5 has been amended as follows.

5 With respect to icing, reference is to be made to the provisions of Chapter 6, Part B of *IMO Res. MSC.*267(85) *"International Code on Intact Stability 2008 (2008 IS Code)"* as amended <u>or other provisions deemed by the Society to be equivalent</u>.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendment is 14 June 2019.