Treaty Series 31 (2003)

Amendments

to the Guidelines on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers (Resolution A.744(18) as amended)

(Resolution MSC.105(73))

Adopted at London, 5 December 2000

[The Amendments entered into force for the United Kingdom on 1 July 2002]

Presented to Parliament
by the Secretary of State for Foreign and Commonwealth Affairs
by Command of Her Majesty
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AMENDMENTS TO THE GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS (RESOLUTION A.744(18), AS AMENDED)

ANNEX A

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS

1. The existing text of paragraph 2.2.2 is replaced by the following:

"2.2.2 For ships of 15 years of age and over, inspection of the outside of the ship's bottom should be carried out with the ship in dry dock. For ships of less than 15 years of age, alternate inspections of the ship's bottom not conducted in conjunction with the enhanced survey during the periodical survey may be carried out with the ship afloat. Inspection of the ship afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably qualified staff are available".

ANNEX B

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF OIL TANKERS

2. The existing text of paragraph 2.2.2 is replaced by the following:

"2.2.2 For ships of 15 years of age and over, inspection of the outside of the ship's bottom should be carried out with the ship in dry dock. For ships of less than 15 years of age, alternate inspections of the ship's bottom not conducted in conjunction with the enhanced survey during the periodical survey may be carried out with the ship afloat. Inspection of the ship afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably qualified staff are available".

3. The following new paragraph 8.1.1.1 is added after the existing paragraph 8.1.1:

"8.1.1.1 In case of oil tankers of 130 m in length and upwards (as defined in the International Convention on Load Lines in force), the ship's longitudinal strength should be evaluated by using the thickness of structural members measured, renewed and reinforced, as appropriate, during the renewal survey of safety construction carried out after the ship reached 10 years of age, in accordance with the criteria for longitudinal strength of the ship's hull girder for oil tankers specified in annex 12."

4. The following new paragraph 8.1.2.1 is added after the existing paragraph 8.1.2:

"8.1.2.1 The final result of the evaluation of the ship's longitudinal strength required in 8.1.1.1, after renewal or reinforcement work of structural members, if carried out as a result of initial evaluation, should be reported as a part of the condition evaluation report."

5. In annex 8, the following new paragraph 3.4 is added after the existing paragraph 3.3:

"3.4 Evaluation result of the ship's longitudinal strength (for oil tankers of 130 m in length and upwards and of over 10 years of age)."

6. In annex 9, the following is added at the end:

"Evaluation result of longitudinal strength of the hull girder of
oil tankers of 130 m in length and upwards and of over 10 years of age
(Of sections 1, 2 and 3 below, only one applicable section should be completed)

1. This section applies to ships regardless of the date of construction: Transverse sectional areas of deck flange (deck plating and deck longitudinals) and bottom flange (bottom shell plating and bottom longitudinals) of the ship's hull girder have been calculated by using the thickness measured, renewed or reinforced, as appropriate, during the renewal survey

of the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate (SC renewal survey) most recently conducted after the ship reached 10 years of age, and found that the diminution of the transverse sectional area does not exceed 10 per cent of the as-built area, as shown in the following table:

Table 1 Transverse sectional area of hull girder flange				
		Measured	As-built	Diminution
Transverse section 1	Deck flange	cm^2	cm^2	cm^2 (%)
	Bottom flange	cm^2	cm^2	cm^2 (%)
Transverse section 2	Deck flange	cm^2	cm^2	cm^2 (%)
	Bottom flange	cm^2	cm^2	cm^2 (%)
Transverse section 3	Deck flange	cm^2	cm^2	cm^2 (%)
	Bottom flange	cm^2	cm^2	cm^2 (%)

2. This section applies to ships constructed on or after 1 July 2002: Section moduli of transverse section of the ship's hull girder have been calculated by using the thickness of structural members measured, renewed or reinforced, as appropriate, during the SC renewal survey most recently conducted after the ship reached 10 years of age in accordance with the provisions of paragraph 2.2.1.1 of annex 12, and are found to be within their diminution limits determined by the Administration, taking into account the recommendations adopted by the Organization, as shown in the following table:

Table 2 Transverse section modulus of hull girder				
		Z_{act} (cm^3)*1	Z_{req} (cm^3) *2	Remarks
Transverse section 1	Upper deck			
	Bottom			
Transverse section 2	Upper deck			
	Bottom			
Transverse section 3	Upper deck			
	Bottom			

Notes

*1 Z_{act} means the actual section moduli of the transverse section of the ship's hull girder calculated by using the thickness of structural members measured, renewed or reinforced, as appropriate, during the SC renewal survey, in accordance with the provisions of paragraph 2.2.1.1 of annex 12.

*2 Z_{req} means diminution limit of the longitudinal bending strength of ships, as calculated in accordance with the provisions of paragraph 2.2.1.1 of annex 12.

The calculation sheets of Z_{act} should be attached to this report.

3. This section applies to ships constructed before 1 July 2002: Section moduli of transverse section of the ship's hull girder have been calculated by using the thickness of structural members measured, renewed or reinforced, as appropriate, during the SC renewal survey most recently conducted after the ship reached 10 years of age in accordance with the provisions of paragraph 2.2.1.2 of annex 12, and found to meet the criteria required by the Administration or the recognized classification society and that Z_{act} is not less than Z_{mc} (defined in *2 below) as specified in appendix 2 to annex 12, as shown in the following table:

Describe the criteria for acceptance of the minimum section moduli of the ship's hull girder for ships in service required by the Administration or the recognized classification society.

Table 3 Transverse section modulus of hull girder				
		Z_{act} (cm^3)*1	Z_{mc} (cm^3)*2	Remark
Transverse section 1	Upper deck			
	Bottom			
Transverse section 2	Upper deck			
	Bottom			
Transverse section 3	Upper deck			
	Bottom			

Notes

*1 As defined in note *1 of table 2.

*2 Z_{mc} means the diminution limit of minimum section modulus calculated in accordance with provisions of paragraph 2.2.1.2 of annex 12."

7. The following new annex 12 is added after annex 11:

"ANNEX 12

CRITERIA FOR LONGITUDINAL STRENGTH OF HULL GIRDER FOR OIL TANKERS

1. General

1.1 These criteria should be used for the evaluation of the longitudinal strength of the ship's hull girder as required by 8.1.1.1.

1.2 In order that the ship's longitudinal strength to be evaluated can be recognized as valid, fillet welding between longitudinal internal members and hull envelopes should be in sound condition so as to keep integrity of longitudinal internal members with hull envelopes.

2. Evaluation of longitudinal strength

On oil tankers of 130 m in length and upwards and of over 10 years of age, the longitudinal strength of the ship's hull girder should be evaluated in compliance with the requirements of this annex on the basis of the thickness measured, renewed or reinforced, as appropriate, during the renewal survey of the Cargo Ship Safety Construction Certificate or Cargo Ship Safety Certificate (SC renewal survey).

2.1 Calculation of transverse sectional areas of deck and bottom flanges of hull girder

2.1.1 The transverse sectional areas of deck flange (deck plating and deck longitudinals) and bottom flange (bottom shell plating and bottom longitudinals) of the ship's hull girder should be calculated by using the thickness measured, renewed or reinforced, as appropriate, during the SC renewal survey.

2.1.2 If the diminution of sectional areas of either deck of bottom flange exceeds 10% of their respective as-built area (i.e., original sectional area when the ship was built), either one of the following measures should be taken:

.1 to renew or reinforce the deck or bottom flanges so that the actual sectional area is not less than 90% of the as-built area; or

.2 to calculate the actual section moduli (Z_{act}) of transverse section of the ship's hull girder by applying the calculation method specified in appendix 1, by using the thickness measured, renewed or reinforced, as appropriate, during the SC renewal survey.

2.2 Requirements for transverse section modulus of hull girder

2.2.1 The actual section moduli of the transverse section of the ship's hull girder, calculated in accordance with paragraph 2.1.2.2, should satisfy either of the following provisions, as applicable:

.1 for ships constructed on or after 1 July 2002, the actual section moduli (Z_{act}) of the transverse section of the ship's hull girder calculated in accordance with the requirements of paragraph 2.1.2.2 should be not less than the diminution limits determined by the Administration, taking into account the recommendations adopted by the Organization; or

.2 for ships constructed before 1 July 2002, the actual section moduli (Z_{act}) of the transverse section of the ship's hull girder calculated in accordance with the requirements of paragraph 2.1.2.2 should meet the criteria for minimum section modulus for ships in service required by the Administration or recognized classification society, provided that in no case Z_{act} should be less than the diminution limit of the minimum section modulus (Z_{mc}) as specified in appendix 2.

APPENDIX 1

CALCULATION CRITERIA OF SECTION MODULI OF MIDSHIP SECTION OF HULL GIRDER

1. When calculating the transverse section modulus of the ship's hull girder, the sectional area of all continuous longitudinal strength members is to be taken into account.

2. Large openings, i.e., openings exceeding 2.5 m in length or 1.2 m in breadth and scallops, where scallop welding is applied, are always to be deducted from the sectional areas used in the section modulus calculation.

3. Smaller openings (manholes, lightening holes, single scallops in way of seams, etc.) need not be deducted, provided that the sum of their breadths or shadow area breadths in one transverse section does not reduce the section modulus at deck or bottom by more than 3% and provided that the height of lightening holes, draining holes and single scallops in longitudinals or longitudinal girders does not exceed 25% of the web depth, for scallops maximum 75mm.

4. A deduction-free sum of smaller opening breadths in one transverse section in the bottom or deck area of $0.06(B - \sum b)$ (where B = breadth of ship, $\sum b$ = total breadth of large openings) may be considered equivalent to the above reduction in sectional modulus.

5. The shadow area will be obtained by drawing two tangent lines with an opening angle of 30°.

6. The deck modulus is related to the moulded deck line at side.

7. The bottom modulus is related to the base line.

8. Continuous trunks and longitudinal hatch coamings are to be included in the longitudinal sectional area provided they are effectively supported by longitudinal bulkheads or deep girders. The deck modulus is then to be calculated by dividing the moment of inertia by the following distance, provided this is greater than the distance to the deck line at side:

$$y_t = y\left(0.9 + 0.2\ \frac{x}{B}\right)$$

where:

y = distance from neutral axis to top of continuous strength member

x = distance from top of continuous strength member to centreline of the ship

x and y to be measured to the point giving the largest value of y_t

9. Longitudinal girders between multi-hatchways will be considered by special calculations.

APPENDIX 2

DIMINUTION LIMIT OF MINIMUM LONGITUDINAL STRENGTH OF SHIPS IN SERVICE

1. The diminution limit of the minimum section modulus (Z_{mc}) of oil tankers in service is given by the following formula:

$$Z_{mc} = cL^2B(C_b + 0.7)k \quad (\text{cm}^3)$$

where:

L = Length of ships. L is the distance, in metres, on the summer load waterline from the fore side of stem to the after side of the rudder post, or the centre of the rudder stock if there is no rudder post. L is not to be less than 96%, and need to be greater than 97%, of the extreme length on the summer load waterline. In ships with unusual stern and bow arrangement, the length L may be specially considered.

B = Greatest moulded breadth in metres.

C_b = Moulded block coefficient at draught d corresponding to summer load waterline, based on L and B. C_b is not to be taken less than 0.6

$$C_b = \frac{\text{moulded displacement (m}^3\text{) at draught } d}{LBd}$$

$$c = 0.9c_n$$

$$c_n = 10.75 - \left(\frac{300 - L}{100}\right)^{1.5} \quad \text{for } 130\ m \leq L \leq 300\ m$$

$$c_n = 10.75 \quad \text{for } 300\ m < L < 350\ m$$

$$c_n = 10.75 - \left(\frac{L - 350}{150}\right)^{1.5} \quad \text{for } 350\ m \leq L \leq 500\ m$$

k = material factor, e.g.:

k = 1.0 for mild steel with yield stress of 235 N/mm^2 and over

k = 0.78 for high tensile steel with yield stress of 315 N/mm^2 and over

k = 0.72 for high tensile steel with yield stress of 355 N/mm^2 and over

2. Scantlings of all continuous longitudinal members of the ship's hull girder based on the section modulus requirement in 1 above are to be maintained within 0.4 L amidships. However, in special cases, based on consideration of type of ship, hull form and loading conditions the scantlings may be gradually reduced towards the end of 0.4 L part, bearing in mind the desire not to inhibit the ship's loading flexibility.

3. However, the above standard may not be applicable to ships of unusual type or design, e.g., for ships of unusual main proportions and/or weight distributions."

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