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INTERPRETATION OF APPLICATION OF SOLAS, MARPOL AND LOAD LINE REQUIREMENTS FOR MAJOR CONVERSIONS OF OIL TANKERS

Relevant IACS Unified Interpretations of the SOLAS Convention

Submitted by the International Association of Classification Societies (IACS)

SUMMARY

Executive summary:	Further to document DE 52/17/1, this document advises the Sub-Committee about IACS Unified Interpretations for the application of SOLAS regulations to major conversions of single-hull tankers to double-hull tankers or bulk carrier/ore carriers
Strategic direction:	2
High-level action:	2.1.1
Planned output:	2.1.1.2 and 2.1.1.4
Action to be taken:	Paragraph 3
Related documents:	DE 52/17/1 and DE 52/21

Introduction

1 Paragraphs 17.5 and 17.6 of document DE 52/21 refer to the Sub-Committee's consideration of document DE 52/17/1 (IACS), in which IACS presented, at annex to its document, IACS Unified Interpretations on the application of the relevant SOLAS regulations to major conversions of single-hull tankers to double-hull tankers or bulk carrier/ore carriers. This consolidated IACS UI is now available on the IACS website (www.iacs.org.uk) as UI SC 226.

2 However, the annex to document DE 52/17/1 inadvertently omitted the technical background/explanation relating to each of the Unified Interpretations. With the aim of facilitating the consideration of this issue, and noting that document DE 52 decided to defer consideration of the interpretations to a time when the item had been included in the provisional agenda of the Sub-Committee, and that this issue has now been added as a substantive item to the agenda of document DE 53; IACS submits at annex to this document the Unified Interpretations together with the technical background/explanation for each interpretation. It is confirmed that the only changes in the annex to this document, as compared to the annex to document DE 52/17/1, are that the annex to this document provides the accompanying technical backgrounds/explanations.

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

CLIMATE CHANGE: A CHALLENGE FOR IMO TOO!

Action requested of the Sub-Committee

3 The Sub-Committee is invited to consider the IACS Unified Interpretations provided at annex and their accompanying technical backgrounds/explanations, and take action as appropriate.

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ANNEX

IACS UNIFIED INTERPRETATIONS (UI) FOR THE APPLICATION OF SOLAS REGULATIONS TO CONVERSIONS OF SINGLE-HULL TANKER TO DOUBLE-HULL TANKER OR BULK CARRIER/ORE CARRIER

UI SC 226
(November 2008)

Note:

This UI is to be applied by IACS Members and Associates when acting as recognized organizations, authorized by flag State Administrations to act on their behalf, unless otherwise advised, from 1 January 2009.

Reference table of the clarification of the applicability of SOLAS regulations

No.	Reg.	Title/Content	Note
1	II-1/1.3	Alterations and modifications of a major character	As amended by MSC.216(82)
2	II-1/3.2, 2 and 3.2, 4	Protective coatings of dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers	As amended by MSC.216(82)
3	II-1/3-6	Access to and within spaces in, and forward of, the cargo area of oil tankers and bulk carriers	As amended by MSC.194(80)
4	II-1/3-8	Towing and Mooring Equipment	As amended by MSC.194(80)
5	II-1/Part B and Part B-1	Part B: Subdivision and stability Part B-1: Stability	As amended by MSC.216(82)
6	II-2/1.3	Repairs, alterations, modifications and outfitting	
7	III/1.4.2	Alterations and modifications of a major character	
8	III/31.1.8	Free-fall lifeboats	
9	V/22	Navigation bridge visibility	
10	XII/4	Damage stability requirements applicable to bulk carriers	
11	XII/5.1 and 5.2	Structural strength of bulk carriers	
12	XII/6.1	Structural and other requirements for bulk carriers	
13	XII/6.2	Structural and other requirements for bulk carriers	
14	XII/6.3	Structural and other requirements for bulk carriers	As amended by MSC.216(82), Annex 1
15	XII/6.4	Structural and other requirements for bulk carriers	As amended by MSC.216(82), Annex 1
16	XII/7.1	Survey and maintenance of bulk carrier	
17	XII/7.2	Survey and maintenance of bulk carrier	
18	XII/8	Information on compliance with requirements for bulk carriers	
19	XII/9	Requirements for bulk carriers not being capable of complying with regulation 4.3 due to the design configuration of their cargo holds	
20	XII/10	Solid bulk cargo density declaration	
21	XII/11	Loading instrument	
22	XII/12	Hold, ballast and dry space water ingress alarms	
23	XII/13	Availability of pumping systems	
24	XII/14	Restrictions from sailing with any hold empty	

SOLAS chapter II-1, regulation 1.3 (as amended by MSC.216(82))

Regulation 1 Application

3 All ships which undergo repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships. Such ships, if constructed before the date on which any relevant amendments enter into force, shall, as a rule, comply with the requirements for ships constructed on or after that date to at least the same extent as they did before undergoing such repairs, alterations, modifications or outfitting. Repairs, alterations and modifications of a major character and outfitting related thereto shall meet the requirements for ships constructed on or after the date on which any relevant amendments enter into force, in so far as the Administration deems reasonable and practicable.

Interpretation

The date on which such a modification occurs for purposes of determining the applicability of requirements for ships constructed on or after the date on which any relevant amendments enter into force shall be:

- the date on which the contract is placed for the conversion; or
- in the absence of a contract, the date on which the work identifiable with the specific conversion begins.

For single-hull tanker to double-hull tanker or single-hull tanker to bulk carrier/ore carrier, i.e.:

1 Conversions of single-hull tankers to double-hull tankers are regarded as modifications of a major character for the purposes of SOLAS chapter II-1.

2 Repairs, alterations and modifications of a major character include:

.1 Substantial alteration of the dimensions of a ship, for example:

Lengthening of a ship by adding a new midbody. The new midbody shall comply with SOLAS chapter II-1.

.2 A change of ship type, for example:

A tanker converted to a bulk carrier. Any structure, machinery and systems that are added or modified shall comply with SOLAS chapter II-1, taking into account the interpretation of regulations 3-2.2 and 3-2.4.

Technical background

For identifying relevant regulations to be applied for a major modification, the principle of ship constructed date is used as a basis to clarify the application of regulations for conversion cases noted. The basis for identifying the date of the conversion draws upon MARPOL regulations for major conversions.

The condition "*assembly has commenced comprising at least 50 tonnes, or one per cent of the lightship weight*" used for "*similar stage of construction*" in SOLAS has not been applied in this interpretation as it is not considered appropriate and could provide a loophole to circumvent the interpretation.

The interpretation is in accordance with DE 51/28, annex 14 for single-hull tanker to double-hull tanker and has been extended for single-hull tanker to bulk carrier/ore carrier,

Ref.

DE 51/28, annex 14

SOLAS chapter II-1, regulations 3-2.2 and 3-2.4 (as amended by MSC.216(82))

Regulation 3-2 Protective coatings of dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers

2 All dedicated seawater ballast tanks arranged in ships and double-side skin spaces arranged in bulk carriers of 150 m in length and upwards shall be coated during construction in accordance with the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers, adopted by the Maritime Safety Committee by resolution MSC.215(82), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

and

4 Maintenance of the protective coating system shall be included in the overall ship's maintenance scheme. The effectiveness of the protective coating system shall be verified during the life of a ship by the Administration or an organization recognized by the Administration, based on the guidelines developed by the Organization.*

Interpretation

For single-hull tanker to double-hull tanker

SOLAS regulation II-1/3-2 (MSC.216(82)) only applies to dedicated water ballast tanks if constructed with all structural members being entirely new. If converting existing spaces into water ballast tanks with part of the existing structural members remaining in place, revised SOLAS regulation II-1/3-2 (MSC.216(82)) need not be applied.

For single-hull tanker to bulk carrier/ore carrier

SOLAS regulation II-1/3-2 (MSC.216(82)) only applies to dedicated water ballast tanks and double-side skin space of bulk carriers if constructed with all structural members being entirely new. If converting existing spaces into dedicated water ballast tanks or double-side skin space of Bulk Carrier with part of the existing structural members remains in place, revised SOLAS regulation II-1/3-2 (MSC.216(82)) need not be applied.

Technical background

For single-hull tanker to double-hull tanker

It is not practicable to apply the IMO PSPC to existing dedicated water ballast tanks and not reasonable to require partial application of the IMO PSPC, even to new structures, unless they constitute completely "new dedicated water ballast tanks".

For single-hull tanker to bulk carrier/ore carrier

It is not practicable to apply the IMO PSPC to existing dedicated water ballast tanks and not reasonable to require partial application of the IMO PSPC, even to new structures unless they constitute completely "new dedicated ballast tanks" or completely "new double-side skin spaces on double-side skin bulk carriers".

SOLAS chapter II-1, regulation 3-6 (as amended by MSC.194(80))

Regulation 3-6 Access to and within spaces in, and forward of, the cargo area of oil tankers and bulk carriers

Regulation text is not inserted here.

Interpretation

For single-hull tanker to double-hull tanker

Permanent means of access contained in table 1 of the Technical provisions for means of access for inspections (resolution MSC.158(78)) need not apply. However, if, in the course of conversion, substantial new structures are added, these new structures shall comply with the regulation.

The term "substantial new structures" means hull structures that are entirely renewed or augmented by new double bottom and/or double side construction (e.g., replacing the entire structure within cargo area or adding a new double bottom and/or double side section to the existing cargo area).

Additionally, an approved access manual shall be provided.

For single-hull tanker to bulk carrier/ore carrier

Permanent means of access contained in table 2 of the Technical provisions for means of access for inspections (resolution MSC.158(78)) need not apply. However, if, in the course of conversion, substantial new structures are added, these new structures shall comply with the regulation.

The term "substantial new structures" means hull structures that are entirely renewed or augmented by new double bottom and/or double-side skin construction (e.g., replacing the entire structure within cargo area or adding a new double bottom and/or double-side section to the existing cargo area).

Additionally, an approved access manual shall be provided.

Technical background

The interpretation is in accordance with document DE 51/28, annex 14 for single-hull tanker to double-hull tanker and has been extended to single-hull tanker to bulk carrier/ore carrier.

SOLAS chapter II-1, regulation 3-8 (as amended by MSC.194(80))
Regulation 3-8 Towing and Mooring Equipment *Regulation text is not inserted here.*
Interpretation <u>For single-hull tanker to double-hull tanker or single-hull tanker to bulk carrier/ore carrier</u> When existing equipment or fittings are only relocated, this regulation applies only to their supporting structures. Except where equipment and fittings for mooring/towing are totally replaced or modified, indication of Safe Work Load and provision of towing and mooring arrangements plan is not required.
Technical background As per SOLAS II-1, regulation1.3.

SOLAS chapter II-1, Part B and Part B-1 (as amended by MSC.216(82) – to be implemented from 1 January 2009)

Part	Reg.	Title	Applicable to
B	4	General	Cargo ships and passenger ships, but shall exclude those cargo ships which are shown to comply with subdivision and damage stability regulations in other instruments developed by IMO.
B-1	5	Intact stability information	Cargo ships and passenger ships
B-1	5-1	Stability information to be supplied to the master	Cargo ships and passenger ships
B-1	6	Required subdivision index *R*	Cargo ships and passenger ships
B-1	7	Attained subdivision index *A*	Cargo ships and passenger ships
B-1	7-1	Calculation of the factor *pi*	Cargo ships and passenger ships
B-1	7-2	Calculation of the factor *si*	Cargo ships and passenger ships
B-1	7-3	Permeability	Cargo ships and passenger ships

Regulation texts are not inserted here.

Interpretation

For single-hull tanker to double-hull tanker

As oil tankers shall comply with MARPOL Annex I, regulation 27 (intact stability) and regulation 28 (damage stability), SOLAS chapter II-1, Parts B and B-1 may be excluded.

For single-hull tanker to bulk carrier/ore carrier

For bulk carrier/ore carrier which is assigned a B reduced freeboard, ICLL 1966, regulation 27 (damage stability) or ICLL Protocol 1988, regulation 27 (damage stability) is applicable. As such, SOLAS chapter II-1, Parts B and B-1 may be excluded.

For bulk carrier/ore carrier which is assigned a B freeboard, SOLAS chapter II-1, Parts B and B-1 are applicable.

Technical background

For single-hull tanker to double-hull tanker

As provided by the footnote in SOLAS II-1, Part B, regulation 4, cargo ships that comply with subdivision and damage stability regulations in other instruments developed by IMO are excluded from applying Part B-1. The intact stability criteria in MARPOL I/27 are considered to be more robust than those contained in SOLAS chapter II-1, regulation B-1/5-1.

For single-hull tanker to bulk carrier/ore carrier

As provided by the footnote in SOLAS chapter II-1, Part B, regulation 4, cargo ships that comply with subdivision and damage stability regulations in other instruments developed by IMO are excluded from applying Part B-1. In the case where deck is loaded with cargoes, the UI LL 65 should be referred to for compliance with damage stability requirements.

SOLAS chapter II-2, regulation 1.3

Regulation 1.3 Repairs, alterations, modifications and outfitting

3.1 All ships which undergo repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships. Such ships, if constructed before 1 July 2002, shall, as a rule, comply with the requirements for ships constructed on or after that date to at least the same extent as they did before undergoing such repairs, alterations, modifications or outfitting.

3.2 Repairs, alterations and modifications which substantially alter the dimensions of a ship or the passenger accommodation spaces, or substantially increase a ship's service life and outfitting related thereto, shall meet the requirements for ships constructed on or after 1 July 2002 in so far as the Administration deems reasonable and practicable.

Interpretation

The date on which such a modification occurs for purposes of determining the applicability of requirements for ships constructed on or after the date on which any relevant amendments enter into force shall be:

- the date on which the contract is placed for the conversion; or
- in the absence of a contract, the date on which the work identifiable with the specific conversion begins.

For single-hull tanker to double-hull tanker

New and converted parts shall comply with the latest applicable requirements.

For single-hull tanker to bulk carrier/ore carrier

New and converted parts shall comply with the latest applicable requirements.

Technical background

For identifying relevant regulations to be applied for a major modification, the principle of ship constructed date is used as a basis to clarify the application regulations for conversion cases noted. The basis for identifying the date of the conversion draws upon MARPOL regulations for major conversions.

The condition "*assembly has commenced comprising at least 50 tonnes, or one per cent of the lightship weight*" used for "*similar stage of construction*" in SOLAS has not been applied in this interpretation as it is not considered appropriate and could provide a loophole to circumvent the interpretation.

SOLAS chapter III, regulation 1.4.2

Regulation 1.4.2 Application

4 For ships constructed before 1 July 1998, the Administration shall:

.1 ……; and

.2 ensure that when life-saving appliances or arrangements on such ships are replaced or such ships undergo repairs, alterations or modifications of a major character which involve replacement of, or any addition to, their existing life-saving appliances or arrangements, such life-saving appliances or arrangements, in so far as is reasonable and practicable, comply with the requirements of this chapter. However, if a survival craft other than an inflatable liferaft is replaced without replacing its launching appliance, or *vice versa*, the survival craft or launching appliance may be of the same type as that replaced.

Interpretation

The date on which such a modification occurs for purposes of determining the applicability of requirements for ships constructed on or after the date on which any relevant amendments enter into force shall be:

- the date on which the contract is placed for the conversion; or
- in the absence of a contract, the date on which the work identifiable with the specific conversion begins.

For single-hull tanker to double-hull tanker

This shall be considered as a major conversion.

For single-hull tanker to bulk carrier/ore carrier

This shall be considered as a major conversion.

Technical background

For identifying relevant regulations to be applied for a major modification, the principle of ship constructed date is used as a basis to clarify the application regulations for conversion cases noted. The basis for identifying the date of the conversion draws upon MARPOL regulations for major conversions.

The condition "*assembly has commenced comprising at least 50 tonnes, or one per cent of the lightship weight*" used for "*similar stage of construction*" in SOLAS has not been applied in this interpretation as it is not considered appropriate and could provide a loophole to circumvent the interpretation.

SOLAS chapter III, regulation 31.1.8
Regulation 31 Survival craft and rescue boat 1.2 *In lieu* of meeting the requirements of paragraph 1.1, cargo ships may carry: .1 one or more free-fall lifeboats, complying with the requirements of section 4.7 of the Code, capable of being free-fall launched over the stern of the ship of such aggregate capacity as will accommodate the total number of persons on board; and .2 in addition, one or more inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code, on each side of the ship, of such aggregate capacity as will accommodate the total number of persons on board. The liferafts on at least one side of the ship shall be served by launching appliances. **and** 1.8 Notwithstanding the requirements of paragraph 1.1, bulk carriers as defined in regulation IX/1.6 constructed on or after 1 July 2006 shall comply with the requirements of paragraph 1.2.
Interpretation <u>For single-hull tanker to double-hull tanker</u> Not relevant. <u>For single-hull tanker to bulk carrier/ore carrier</u> Not applicable.
Technical background <u>For single-hull tanker to double-hull tanker</u> SOLAS chapter III, regulation 31.1.8 applies to bulk carriers only. <u>For single-hull tanker to bulk carrier/ore carrier</u> The basis for application of free-fall life boats to new bulk carriers built on or after 1 July 2006 is recognized. However, this UI is based on the conditions contained in SOLAS chapter III, regulation 1.4.2. To do otherwise would require an amendment to SOLAS.

SOLAS chapter V, regulation 22

Regulation 22 Navigation bridge visibility

Regulation text is not inserted here.

Interpretation

For single-hull tanker to double-hull tanker

In ballast loading condition, the visibility standard applicable to the ship prior to conversion is acceptable as equivalent to the ballast loading condition after the conversion. Visibility forward needs to comply with if any changes are made to the fore end structural arrangement. This need not only be related to the fitting of a full forecastle, but could also be affected by aspects such as increasing the sheer and/or step in the upper deck.

For single-hull tanker to bulk carrier/ore carrier

In ballast loading condition, the visibility standard applicable to the ship prior to conversion is acceptable as equivalent to the ballast loading condition after the conversion. Visibility forward needs to comply with if any changes are made to the fore end structural arrangement. This need not only be related to the fitting of a full forecastle, but could also be affected by aspects such as increasing the sheer and/or step in the upper deck.

Technical background

It is noted that there is no regulation in SOLAS chapter V which addresses modifications of a major character.

For single-hull tanker to double-hull tanker or single-hull tanker to bulk carrier/ore carrier

This UI considers the principle in regulation V/22.3 where, for ships constructed prior to 1 July 1998, the level of visibility shall be retained as a minimum at the same level prior to conversion as given in SOLAS chapter V, regulation 22.2.

SOLAS regulation XII/4

Damage stability requirements applicable to bulk carriers

2 Bulk carriers of 150 m in length and upwards of double-side skin construction in which any part of longitudinal bulkhead is located within B/5 or 11.5 m, whichever is less, inboard from the ship's side at right angle to the centreline at the assigned summer load line, designed to carry solid bulk cargoes having a density of 1,000 kg/m^3 and above, constructed on or after 1 July 2006 shall, when loaded to the summer load line, be able to withstand flooding of any one cargo hold in all loading conditions and remain afloat in a satisfactory condition of equilibrium, as specified in paragraph 4.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

When the breadth of wing tanks is less than B/5 or 11.5 m, whichever is less, this requirement applies to the relevant cargo hold(s) in way of that wing tank.

Technical background

If the breadth of the wing tank is less than B/5, cargo hold will be flooded by applying transverse extent of damage as per ICLL regulation 27.

SOLAS regulations XII/5.1 and 5.2
Structural strength of bulk carriers

1 Bulk carriers of 150 m in length and upwards of single-side skin construction, designed to carry solid bulk cargoes having a density of 1,000 kg/m^3 and above constructed on or after 1 July 1999, shall have sufficient strength to withstand flooding of any one cargo hold to the water level outside the ship in that flooded condition in all loading and ballast conditions, taking also into account dynamic effects resulting from the presence of water in the hold, and taking into account the recommendations adopted by the Organization

2 Bulk carriers of 150 m in length and upwards of double-side skin construction, in which any part of longitudinal bulkhead is located within B/5 or 11.5 m, whichever is less, inboard from the ship's side at right angle to the centreline at the assigned summer load line, designed to carry bulk cargoes having a density of 1,000 kg/m^3 and above constructed on or after 1 July 2006, shall comply with the structural strength provisions of paragraph 1.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

When the breadth of wing tanks is less than B/5 or 11.5 m, whichever is less, this requirement applies to the relevant cargo hold(s) in way of that wing tank.

Technical background

If the breadth of the wing tank is less than B/5, cargo hold will be flooded as per assumptions made in SOLAS chapter XII, regulation 4. Additionally, UI SC 207 is to be complied with for single-hull tanker to bulk carrier/ore carrier.

Ref.

UI SC 207: Structural Strength of Bulk Carriers in case of Accidental Hold Flooding

SOLAS regulation XII/6.1

Structural and other requirements for bulk carriers

1 Bulk carriers of 150 m in length and upwards of single-side skin construction, carrying solid bulk cargoes having a density of 1,780 kg/m^3 and above, constructed before 1 July 1999, shall comply with the following requirements in accordance with the implementation schedule specified in regulation 3:

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation is not applicable.

Technical background

This regulation applies to existing ships constructed before 1 July 1999 with single-side skin structures.

Also, a conversion from a single-hull tanker to bulk carrier/ore carrier is required to comply with SOLAS regulation XII/4 as per the interpretation to SOLAS regulation XII/4.

SOLAS regulation XII/6.2

Structural and other requirements for bulk carriers

2 Bulk carriers of 150 m in length and upwards constructed on or after 1 July 2006, in all areas with double-side skin construction shall comply with the following requirements:

.1 Primary stiffening structures of the double-side skin shall not be placed inside the cargo hold space.

.2 Subject to the provisions below, the distance between the outer shell and the inner shell at any transverse section shall not be less than 1,000 mm measured perpendicular to the side shell. The double-side skin construction shall be such as to allow access for inspection as provided in regulation II-1/3-6 and the Technical Provisions referring thereto.

.1 The clearances below need not be maintained in way of cross ties, upper and lower end brackets of transverse framing or end brackets of longitudinal framing.

.2 The minimum width of the clear passage through the double-side skin space in way of obstructions such as piping or vertical ladders shall not be less than 600 mm.

.3 Where the inner and/or outer skins are transversely framed, the minimum clearance between the inner surfaces of the frames shall not be less than 600 mm.

.4 Where the inner and outer skins are longitudinally framed, the minimum clearance between the inner surfaces of the frames shall not be less than 800 mm. Outside the parallel part of the cargo hold length, this clearance may be reduced where necessitated by the structural configuration, but, in no case, shall be less than 600 mm.

.5 The minimum clearance referred to above shall be the shortest distance measured between assumed lines connecting the inner surfaces of the frames on the inner and outer skins.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation applies. For permanent means of access, the requirements contained in table 2 of the Technical provisions for means of access for inspections (resolution MSC.158(78)) shall not apply to tankers converting from single-hull to double-hull. However, if, in the course of conversion, substantial new structures are added, these new structures shall comply with the regulation. The term "substantial new structures" means hull structures that are entirely renewed or augmented by new double bottom and/or double side construction (e.g., replacing the entire structure within cargo area or adding a new double bottom and/or double-side section to the existing cargo area). Additionally, an approved access manual shall be provided.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as major conversion, hence regulations in this chapter shall be complied with where relevant.

Ref.

Draft circular of document DE 51/28, annex 14.

SOLAS regulation XII/6.3 (MSC.216(82), annex 1)

Structural and other requirements for bulk carriers

3 The double-side skin spaces, with the exception of top-side wing tanks, if fitted, shall not be used for the carriage of cargo.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation applies.

Technical background
Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion hence regulations in this chapter shall be complied with where relevant.

SOLAS regulation XII/6.4 (MSC.216(82), annex 1)

Structural and other requirements for bulk carriers

4 In bulk carriers of 150 m in length and upwards, carrying solid bulk cargoes having a density of 1,000 kg/m^3 and above, constructed on or after 1 July 2006:

.1 the structure of cargo holds shall be such that all contemplated cargoes can be loaded and discharged by standard loading/discharge equipment and procedures without damage which may compromise the safety of the structure;

.2 effective continuity between the side shell structure and the rest of the hull structure shall be assured; and

.3 the structure of cargo areas shall be such that single failure of one stiffening structural member will not lead to immediate consequential failure of other structural items potentially leading to the collapse of the entire stiffened panels.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

The newly constructed parts of converted bulk carriers of 150 m in length and upwards, carrying solid bulk cargoes having a density of 1,000 kg/m^3 and above, constructed on or after 1 July 2006 shall comply.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as major conversion, hence regulations in this chapter shall be complied with where relevant. Additionally, UI SC 208 and UI SC 209 are to be complied with.

Ref.

UI SC 208: Protection of cargo holds from loading/discharge equipment

UI SC 209: Redundancy of stiffening structural members for vessels not designed according to Common Structural Rules for Bulk Carriers

SOLAS regulation XII/7.1

Survey and maintenance of bulk carriers

1 Bulk carriers of 150 m in length and upwards of single-side skin construction, constructed before 1 July 1999, of 10 years of age and over, shall not carry solid bulk cargoes having a density of 1,780 kg/m^3 and above unless they have satisfactorily undergone either:

.1 a periodical survey, in accordance with the enhanced programme of inspections during surveys required by regulation XI-1/2; or

.2 a survey of all cargo holds to the same extent as required for periodical surveys in the enhanced programme of inspections during surveys required by regulation XI-1/2.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation is not applicable.

Technical background

This regulation applies to existing ships constructed before 1 July 1999 with single-side skin structures.

SOLAS regulation XII/7.2

Survey and maintenance of bulk carriers

2 Bulk carriers shall comply with the maintenance requirements provided in regulation II-1/3-1 and the Standards for owners' inspection and maintenance of bulk carrier hatch covers, adopted by the Organization by resolution MSC.169(79), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation shall be applied.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.

SOLAS regulation XII/8

Information on compliance with requirements for bulk carriers

1 The booklet required by regulation VI/7.2 shall be endorsed by the Administration or on its behalf, to indicate that regulations 4, 5, 6 and 7, as appropriate, are complied with.

2 Any restrictions imposed on the carriage of solid bulk cargoes having a density of 1,780 kg/m^3 and above in accordance with the requirements of regulations 6 and 14 shall be identified and recorded in the booklet referred to in paragraph 1.

3 A bulk carrier to which paragraph 2 applies shall be permanently marked on the side shell at midships, port and starboard, with a solid equilateral triangle having sides of 500 mm and its apex 300 mm below the deck line, and painted a contrasting colour to that of the hull.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation shall be applied.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.

SOLAS regulation XII/9

Requirements for bulk carriers not being capable of complying with regulation 4.3 due to the design configuration of their cargo holds

For bulk carriers constructed before 1 July 1999 being within the application limits of regulation 4.3, which have been constructed with an insufficient number of transverse watertight bulkheads to satisfy that regulation, the Administration may allow relaxation from the application of regulations 4.3 and 6 on condition that they shall comply with the following requirements:

.1 for the foremost cargo hold, the inspections prescribed for the annual survey in the enhanced programme of inspections during surveys required by regulation XI-1/2 shall be replaced by the inspections prescribed therein for the intermediate survey of cargo holds;

.2 are provided with bilge well high water level alarms in all cargo holds, or in cargo conveyor tunnels, as appropriate, giving an audible and visual alarm on the navigation bridge, as approved by the Administration or an organization recognized by it in accordance with the provisions of regulation XI-1/1; and

.3 are provided with detailed information on specific cargo hold flooding scenarios. This information shall be accompanied by detailed instructions on evacuation preparedness under the provisions of section 8 of the International Safety Management (ISM) Code and be used as the basis for crew training and drills.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation is not applicable.

Technical background

This regulation applies to existing ships constructed before 1 July 1999 with single-side skin structures.

Also, a conversion from a single-hull tanker to bulk carrier/ore carrier is required to comply with SOLAS regulation XII/4 as per the interpretation to SOLAS regulation XII/4.

SOLAS regulation XII/10

Solid bulk cargo density declaration

1 Prior to loading bulk cargo on bulk carriers of 150 m in length and upwards, the shipper shall declare the density of the cargo, in addition to providing the cargo information required by regulation VI/2.

2 For bulk carriers to which regulation 6 applies, unless such bulk carriers comply with all relevant requirements of this chapter applicable to the carriage of solid bulk cargoes having a density of 1,780 kg/m^3 and above, any cargo declared to have a density within the range 1,250 kg/m^3 to 1,780 kg/m^3 shall have its density verified by an accredited testing organization.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation shall be applied.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.

SOLAS regulation XII/11

Loading instrument

(Unless provided otherwise, this regulation applies to bulk carriers regardless of their date of construction.)

1 Bulk carriers of 150 m in length and upwards shall be fitted with a loading instrument capable of providing information on hull girder shear forces and bending moments, taking into account the recommendation adopted by the Organization.

2 Bulk carriers of 150 m in length and upwards constructed before 1 July 1999 shall comply with the requirements of paragraph 1 not later than the date of the first intermediate or periodical survey of the ship to be carried out after 1 July 1999.

3 Bulk carriers of less than 150 m in length constructed on or after 1 July 2006 shall be fitted with a loading instrument capable of providing information on the ship's stability in the intact condition. The computer software shall be approved for stability calculations by the Administration and shall be provided with standard conditions for testing purposes relating to the approved stability information.

Interpretation

For single-hull tanker to double-hull tanker

Not relevant.

For single-hull tanker to bulk carrier/ore carrier

This regulation shall be applied.

Technical background

Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.

SOLAS regulation XII/12

Hold, ballast and dry space water ingress alarms

(This regulation applies to bulk carriers regardless of their date of construction.)

1 Bulk carriers shall be fitted with water level detectors.

2 The audible and visual alarms specified in paragraph 1 shall be located on the navigation bridge:

.1 in each cargo hold, giving audible and visual alarms, one when the water level above the inner bottom in any hold reaches a height of 0.5 m and another at a height not less than 15% of the depth of the cargo hold but not more than 2 m. On bulk carriers to which regulation 9.2 applies, detectors with only the latter alarm need be installed. The water level detectors shall be fitted in the aft end of the cargo holds. For cargo holds which are used for water ballast, an alarm overriding device may be installed. The visual alarms shall clearly discriminate between the two different water levels detected in each hold;

.2 in any ballast tank forward of the collision bulkhead required by regulation II-1/12, giving an audible and visual alarm when the liquid in the tank reaches a level not exceeding 10% of the tank capacity. An alarm overriding device may be installed to be activated when the tank is in use; and

.3 in any dry or void space other than a chain cable locker, any part of which extends forward of the foremost cargo hold, giving an audible and visual alarm at a water level of 0.1 m above the deck. Such alarms need not be provided in enclosed spaces the volume of which does not exceed 0.1% of the ship's maximum displacement volume.

3 Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the annual, intermediate or renewal survey of the ship to be carried out after 1 July 2004, whichever comes first.

Interpretation <u>For single-hull tanker to double-hull tanker</u> Not relevant. <u>For single-hull tanker to bulk carrier/ore carrier</u> This regulation shall be applied.
Technical background Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.
Ref. UI SC 180

SOLAS regulation XII/13 **Availability of pumping systems** (This regulation applies to bulk carriers regardless of their date of construction.) 1 On bulk carriers, the means for draining and pumping ballast tanks forward of the collision bulkhead and bilges of dry spaces any part of which extends forward of the foremost cargo hold shall be capable of being brought into operation from a readily accessible enclosed space, the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks. Where pipes serving such tanks or bilges pierce the collision bulkhead, valve operation by means of remotely operated actuators may be accepted as an alternative to the valve control specified in regulation II-1/12, provided that the location of such valve controls complies with this regulation. 2 Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the first intermediate or renewal survey of the ship to be carried out after 1 July 2004, but, in no case, later than 1 July 2007.
Interpretation <u>For single-hull tanker to double-hull tanker</u> Not relevant. <u>For single-hull tanker to bulk carrier/ore carrier</u> This regulation shall be applied.
Technical background Conversion from single-hull tanker to bulk carrier/ore carrier is considered as a major conversion, hence regulations in this chapter shall be complied with where relevant.

Ref.
UI SC 179

SOLAS regulation XII/14
Restrictions from sailing with any hold empty Bulk carriers of 150 m in length and upwards of single-side skin construction, carrying cargoes having a density of 1,780 kg/m^3 and above, if not meeting the requirements for withstanding flooding of any one cargo hold as specified in regulation 5.1 and the Standards and criteria for side structures of bulk carriers of single-side skin construction, adopted by the Organization by resolution MSC.168(79), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I, shall not sail with any hold loaded to less than 10% of the hold's maximum allowable cargo weight when in the full load condition, after reaching 10 years of age. The applicable full load condition for this regulation is a load equal to or greater than 90% of the ship's deadweight at the relevant assigned freeboard.
Interpretation <u>For single-hull tanker to double-hull tanker</u> Not relevant. <u>For single-hull tanker to bulk carrier/ore carrier</u> This regulation is not applicable.
Technical background This regulation applies to existing bulk carriers which cannot meet the requirements for withstanding any one cargo hold as specified in regulation 5.1. <u>Also, a conversion from a single-hull tanker to bulk carrier/ore carrier is required to comply with SOLAS regulation XII/4 as per the interpretation to SOLAS regulation XII/4</u>.