Introduction

The 55th session of the IMO Sub-Committee on Stability Load Lines and on Fishing Vessels (SLF 55) will be held from 18 to 22 February 2013, at the IMO headquarters in London. This briefing summarises subjects under discussion which are relevant to the work of Lloyd’s Register. Due attention should be made to the “Advice” and “Application” sections given under each subject.

Readers should note that regulations relating to SOLAS are generally, unless expressly provided otherwise, applicable to ships (cargo ships of 500 gross tonnage and above, and passenger ships irrespective of tonnage) engaged on international voyages. Similarly, Load Line regulations are applicable to ships over 24 metres in length which are engaged on international voyages.

Working or drafting groups are expected to be established to discuss relevant agenda items as follows:

Working group 1 - Intact Stability
Working group 2 - Subdivision and damage stability
Working group 3 - Development of provisions to ensure the integrity and uniform implementation of the 1969 TM Convention
Drafting group 1 - Guidelines for verification of damage stability requirements for tankers

Overview of agenda items

The following agenda items are relevant to the work of Lloyd’s Register:

Development of second generation intact stability criteria (agenda item 3)

The IMO is aware that some ships are experiencing a loss of stability due to dynamic factors. Five different dynamic stability conditions are being examined. The intention is to develop minimum stability criteria of each of them which new ships should be able to meet. If it is impractical to do so then operational restrictions to prevent a potentially dangerous situation from developing are to be developed.

For details, please refer to Annex 1 of this document.

Development of guidelines on safe return to port for passenger ships (agenda item 4)

This agenda item covers two areas of passenger stability. Firstly it considers the modelling of cross flooding arrangements and the time to flood. Secondly the need for further guidance on computer support provided to passenger ships to assist with the decision to abandon ship. Work on both these areas has been undertaken by correspondence and is presented for consideration.

For details, please refer to Annex 2 of this document.

Development of guidelines for verification of damage stability requirements for tankers (agenda item 5)

It has been agreed in principle that tankers will be required to have a computer program installed (sometimes known as a loading instrument) which is capable of calculating the damage stability for the ship in accordance with the appropriate regulations. (See also agenda item 6 for this meeting.) It was also agreed that guidelines on
what exactly the program should be able to do were also needed. Draft guidelines are expected to be finalised at this session of SLF (SLF 55).

For details, please refer to [Annex 3](#) of this document.

**Development of mandatory carriage requirements for stability instruments on board tankers (agenda item 6)**

There is a concern that some tankers are not able to confirm that their specific loading condition complies with the relevant damage stability requirements. To address this issue the last session of SLF (SLF 54) agreed in principle that a computer program capable of calculating the damage stability should be provided onboard all tankers. Work under this agenda item will consider proposed amendments to MARPOL, IBC Code, IGC Code to mandate the provision of this equipment. See also agenda item 5 in this sub-committee for the development of associated guidelines.

For details, please refer to [Annex 4](#) of this document.

**Review of damage stability regulations for ro-ro passenger ships (agenda item 7)**

As part of the general review of damage stability requirements which SLF has been doing for some time, it was identified that some damage situations can lead to a rapid capsise, particularly on ro-ro passenger ships with long lower holds. A research project has been underway to investigate this, the results of which are expected to be discussed at this SLF meeting.

For details, please refer to [Annex 5](#) of this document.

**Revision of SOLAS chapter II-1 subdivision and damage stability regulations (agenda item 8)**

Amendments to SOLAS chapter II-1 to harmonize cargo ship and passenger ship damage stability have been in force since 1 January 2009. These amendments made probabilistic damage stability the main method for calculating damage stability. Since the amendments have entered into force the need for a number of revisions has become apparent. A major review of the subdivision and damage stability requirements contained in chapter II-1 of SOLAS has been undertaken. Progress with this review and proposed amendments will be discussed.

For details, please refer to [Annex 6](#) of this document.

**Development of provisions to ensure the integrity and uniform implementation of the 1969 TM Convention (agenda item 9)**

The 1969 Tonnage Measurement Convention (TM Convention) was developed some time ago. Due to a number of factors, e.g. the reliance on tonnage as a basis for application of other statutory requirements and the lack of tacit acceptance for amendments, it has not been practical to amend the Convention. However the development of different ship types has lead to inconsistencies in the application of the tonnage calculations. To address this the SLF sub-committee is looking at where the problems with the TM Convention are and what can be done to ensure that proposed solutions are applied consistently.

For details, please refer to [Annex 7](#) of this document.

**Development of amendments to part B of the 2008 IS Code on towing and anchor handling operations (agenda item 10)**

Following the sinking of the “Bourbon Dolphin” while undertaking anchor handling duties in the North Sea, it was agreed that some statutory requirements were needed to look at the stability of vessels which undertake towing and anchor handling. A number of amendments have been proposed to be included in part B (the non-mandatory part) of the 2008 Intact Stability Code.

For details, please refer to [Annex 8](#) of this document.
Consideration of IACS unified interpretations (agenda item 11)

When IACS finds some vague terminology or requirements in statutory requirements it develops unified interpretations to ensure consistency in their application among its members. These unified interpretations are presented to the relevant sub-committees at the IMO so that member governments can decide whether they agree that the interpretation is acceptable.

For details, please refer to Annex 9 of this document.

Development of amendments to the criterion for maximum angle of heel in turns of the 2008 IS Code (agenda item 12)

There is an apparent inconsistency in the requirements for the maximum angle of heel in turns and that for the minimum turning circle. Amendments to the current requirements for the maximum angle of heel in turns in the 2008 IS Code are being proposed to introduce some consistency and provide some flexibility for demonstrating compliance with the requirements.

For details, please refer to Annex 10 of this document.

Development of a mandatory Code for ships operating polar waters (agenda item 13)

With the increase in shipping activity in Antarctica and the possibility of the Arctic being ice free for at least some of the year, it has been agreed that mandatory requirements for ships operating in the Polar regions are needed. These requirements would be in addition to any existing requirements in SOLAS or MARPOL. The sub-committee on design and equipment has been developing text for the mandatory code and has requested other sub-committees to review proposals which come under their remit. Chapters 3 and 4 of the draft Polar Code have been submitted to SLF for its consideration.

For details, please refer to Annex 11 of this document.

Any other business (Agenda item 16)

Any matters which need to be brought to the attention of the sub-committee but do not fit under one of the agenda items will be discussed under this item.

Documents have been submitted on the following matters for consideration at this session:

1. Inclinometers and the prediction of parametric roll
2. The Cape Town agreement on Torremolinos and how to count fishing vessels
3. Damage stability for offshore supply vessels carrying limited quantities of noxious liquid substances
4. The protection of tanks carrying LNG or LPG as fuel or cargo.
5. The revisions to the IGC Code.

For details, please refer to Annex 12 of this document.

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Annex 1 - Development of second generation intact stability criteria (agenda item 3)

Overview

The IMO is aware that some ships are experiencing a loss of stability due to dynamic factors. Five different dynamic stability conditions are being examined. The intention is to develop minimum stability criteria of each of them which new ships should be able to meet. If it is impractical to do so then operational restrictions to prevent a potentially dangerous situation from developing are to be developed.

This item is expected to be discussed in a working group.

The target completion date for this item is 2014.

Background

Static intact stability standards (based on the properties of the righting lever (GZ) curve) have served the shipping industry well for decades, but it has been recognised that incidents do occur to ships meeting the standards and that there may be hydrodynamic related mechanisms that can lead to stability failure. The IMO has been working for some time now on updating the 2008 Intact Stability Code (2008 IS Code) to include, for the first time, criteria for specific problematic modes of stability failure. These modes are:

- Parametric roll (excessive roll in head seas)
- Surf riding/broaching (typically following seas)
- Pure loss of stability on a wave crest (ship loses buoyancy because it is effectively stationary on the crest and the water profile is different from design i.e. level waterline)
- Dead ship condition (large roll is possible as stabilising effects of speed are removed)
- Excessive accelerations

They have become collectively known as the ‘second generation intact stability criteria’. The IMO has planned a three tier approach to vulnerability assessment for each of these criteria with each level becoming more complex. A design must pass the assessment at one of these levels:

- Level 1: simple calculation (possible by calculator)
- Level 2: more involved calculation (may involve spreadsheets or small software program)
- Level 3: direct assessment (by sophisticated software)

Ships deemed ‘conventional’ are expected to pass level 1 and most other ships at level 2. A ship complying with the simplest level (level 1) will not have to carry out difficult calculations at levels 2 or 3. Further ‘operator guidance’ is envisaged as a natural output from level 3 assessments.

A common format for the different criteria has been agreed. Each criteria should clearly state:
- the data needed for the criteria (inputs)
- the format and content of the result (e.g. limiting value for KG, or yes/no assessment)
- possible counter measures
- detailed information on how to do the calculation with an example.

In addition to discussing the second generation intact stability criteria, the correspondence group also considered the issue of ice accretion on timber deck cargoes. A proposal was put forward to the correspondence group and there further papers have been submitted on the topic.

Lloyd’s Register’s position

This topic has the potential to have a large impact on ship design and operation. LR will be involved in the discussions and will provide feedback on the usability of the proposed criteria where possible. The current proposals for Level 1 criteria appear to be more appropriate to Level 2, and the proposed Level 2 criteria are too
complex for most ordinary users. This may be due to the complexity of the issues and will require further consideration.

The suggestion to consider real life failures when determining vulnerability criteria is supported. However, the proposal to require offshore supply vessels and special purpose ships to comply with wind and weather criteria needs to be considered further. The formulae developed for these criteria are not applicable to these vessel types. It is agreed that the sea states met by these vessels in service would indicate that some criteria need to be developed, but it should be appropriate for the hull forms under consideration.

The different methods for calculating roll moment of inertia given in paper SLF 55/3/6 need further consideration. The practicality of carrying out a full FEM or calculating the mass of each container at the design stage needs to be considered.

Advice to Clients

General It is recommended that all clients review the proposed formulae due to the potential for significant impact on ship design and operation.

Owners / operators will need to be aware of the additional calculations which may be necessary before a ship leaves port showing compliance with the new regulations for dynamic stability for the ship in the “as loaded” condition.

Designers and builders will need to carry out further calculations to confirm compliance with the new criteria.

Manufacturers of computer programs which carry out stability calculations will need to ensure that their programs are able to cover these new calculations as well.

Flag Administrations and their Recognized Organizations will need to ensure that employees are aware of the need for the new calculations to be done and ensure that suitable training and assessment tools are provided.

Applicability

The application of these criteria is still not decided. It is intended to include them initially in the non-mandatory part (Part B) of the 2008 IS Code to ensure they are workable. A date for the application has not yet been decided.

Documents Submitted

SLF 55/3 (Chairman of working group) – Report of the working group at SLF 54 (part 2)
The working group established at SLF 54 continued working after the completion of its report in order to progress work in preparation for the correspondence group. This paper gives a summary of what the working group agreed before the end of SLF 54. The majority of the discussion centred on the serious casualty on board the “Chicago Express”. Issues arising from that accident, which are not already under consideration by SLF, are identified as: the need to consider provision of hand holds on the bridge, the need to be able to identify sea-related ship motions to enable crews to take appropriate action, and the ability of VDR equipment to continue functioning at extreme accelerations.

SLF 55/3/1 & Add.1(Japan) – Report of the Correspondence Group on Intact Stability (Part I and Part II)
Part I of the report covers the discussions on second generation intact stability matters, part II covers other intact stability matters which were referred to the correspondence group.

Matters relating to the second generation intact stability criteria have focused on the vulnerability criteria for the various dynamic stability situations. More work is required on these and further discussion is expected at SLF 55. Regarding ice loading with timber deck cargoes, this matter is referred to SLF 55 for further consideration.

Concerning the possible accumulation of water on deck from the new fire-fighting requirements for container ships, it was agreed that the current load line freeing port requirements were adequate and no further work was needed.
SLF 55/3/2 (China) – Proposal for Level 1 vulnerability criteria on parametric roll, pure loss of stability and surf-riding/broaching
China has carried out a number of calculations to verify the level 1 vulnerability criteria for three of the dynamic stability situations. Full details are contained in SLF 55/INF.3. The paper concludes that the vulnerability criteria show a large variation depending on ship type, loading condition and wave steepness and suggests that an appropriate threshold be considered taking into account actual ship type vulnerability.

This paper proposes some amendments to the existing text of the 2008 IS Code to make it clear when intact stability criteria are an alternative or in addition to those required by the 2008 IS Code. Additionally further clarifications on some aspects of the 2008 IS Code are suggested.

SLF 55/3/4 (China) – Comments on the standard values in the Level 2 of pure loss of stability and incident wave conditions
Following an analysis of 32 load conditions on 22 ships, this paper suggests that there are inconsistencies between the levels 1 and 2 results with one of the variables as proposed. To avoid this a change is suggested. The analysis also identified that the two options for level 2 are consistent with each other, and suggests using the one with the simplest formula for ease of use.

SLF 55/3/5 (China) – Comments on the standard values in the Level 2 of parametric rolling and incident wave conditions
This paper considers the various proposed formulae for parametric rolling at levels 1 and 2 for 22 ships covering 32 load conditions. Various suggestions are made to ensure consistency between the various options for each level, and to ensure consistency between the different levels.

SLF 55/3/6 (China) – Proposal for calculation method of roll moment of inertia for parametric rolling criteria
Four different methods of calculating the roll moment of inertia (needed to assess vulnerability to parametric roll) are assessed. The four methods range from a full FEM model for the ship with moment of inertia calculated for containers based on an analytical method to a simple formula. The four methods are compared to each other and the influence on the predicted vulnerability to parametric roll is assessed. The need to consider more than one incident wave frequency is also identified.

SLF 55/3/ (Italy) – Comments on present status of development of second generation intact stability criteria
The Italian delegation has identified six areas which in their opinion require particular consideration. These are: the scheme of application, possible countermeasures, variations with reference waves, specifications for tools and procedures to be used when direct stability assessment is required, criteria for excessive acceleration, and revision of the weather criteria and criteria for the dead-ship condition

SLF 55/3/8 (United States) – Comments on document SLF 55/3/1/Add.1 (Japan)
This paper discusses ice accretion weight and suggests some improvements to the formula proposed in the report of the correspondence group. It also requests some background on the current ice loading value (30 kg/m²) used in the 2008 IS Code.

SLF 55/3/9 (United States) – Comments on document SLF 55/3/1 (Japan)
This paper comments on the calculation results for parametric roll and pure loss of stability as reported by the correspondence group.

SLF 55/3/10 (Poland) – Comments on the report of the Correspondence Group on Intact Stability (part II)
This paper presents some further aspects of ice accretion on timber deck cargoes for the consideration of the SLF sub-committee.
SLF 55/3/11 (Italy and Japan) – Comparison study of draft level 2 vulnerability criteria for stability under dead ship condition
Two methods for the calculation of stability under the dead ship condition had previously been proposed. This paper compares the two methods for the consideration of the sub-committee.

SLF 55/3/12 (Japan) – Comments on draft level 2 vulnerability criteria for broaching
During the correspondence group discussions a proposal was put forward on the formula of probability density of local wave height. There was insufficient time in the correspondence group to discuss this proposal and this paper is intended to assist with the discussions at SLF 55.

SLF 55/3/13 & Corr.1 (Japan) – Response to comments on sample calculation results of draft vulnerability criteria for parametric rolling and pure loss of stability by Japan
During the correspondence group deliberations, some comments were made on a proposal for the vulnerability criteria for parametric roll and pure loss of stability. Due to time constraints it was not possible to respond to these comments in the correspondence group, so this paper provides the comments for the consideration of the SLF sub-committee. It should be noted that Figure 2 is corrected in paper SLF 55/3/13/Corr.1.

SLF 55/3/14 (Japan) – Comment on sample calculation results of draft level 2 vulnerability criteria for pure loss of stability by the United States
The United States had submitted some sample calculation results to the correspondence group, which did not have sufficient time to consider them. This paper provides some comments on the submitted results.

SLF 55/3/15 (Poland) – Comments and proposal for further steps with regard to second generation intact stability criteria
This paper considers the ways in which the original intent of this agenda item has changed during its development and the consequences. It notes that the current level 1 and 2 criteria are not yet fit for inclusion in Part B (non-mandatory) of the 2008 IS Code, and proposes some specific steps with definite time limits for completion.

SLF 55/INF.3 (China) – Sample verification results of the Level 1 vulnerability criteria on parametric roll, pure loss of stability and surf-riding/broaching
This paper provides the detailed information from which paper SLF 55/3/2 was developed. 52 ships were studied, covering 118 different loading conditions, for compliance with the level 1 criteria for parametric roll, pure loss of stability and surf-riding/broaching.

SLF 55/INF.5 (Germany) – Sample calculations for level 1 and level 2 vulnerability criteria
This paper considers 10 cruise ships of varying length and looks at the proposed criteria for pure loss of stability and parametric roll. It finds that all cruise ships are vulnerable at level 1 to both pure loss of stability and parametric roll. The results for level 2 calculations are also presented. These show that some ships are able to pass level 1 but fail at level 2. It is noted that a very large number of calculations are required for the current level 2 proposals. Eight further issues connected to the level 1 and level 2 calculations for pure loss of stability and parametric roll and related matters are given.

SLF 55/INF.14 (IACS) – Verification of the draft Levels 1 and 2 vulnerability criteria for parametric rolling and pure loss of stability
IACS has carried out an assessment for 5 different ships using computer modelling of the ship in a six degrees of freedom time domain simulation. The ships were also assessed using the draft level 1 and 2 criteria for parametric roll and pure loss of stability to verify their ability to correctly identify these dynamic stability failures. It was found that there was some correlation of the results, although the draft criteria did not predict that a vessel was OK when it was not they did sometimes predict failure when direct calculation indicated that all was well. The time to carry out direct calculations was noted as being considerable and it is concluded that this is not really a practical option to generate operational guidance for vulnerable ships.

SLF 55/INF.15 (Japan) – Information collected by the Correspondence Group on Intact Stability
The 32 annexes to this paper bring together all the information which was collected by the intersessional correspondence group on intact stability. Due to time constraints not all submissions were considered by the correspondence group, and these are expected to be discussed at SLF 55.

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Annex 2 - Development of guidelines on safe return to port for passenger ships (agenda item 4)

Overview

This agenda item covers two areas of passenger stability. Firstly it considers the modelling of cross flooding arrangements and the time to flood. Secondly the need for further guidance on computer support provided to passenger ships to assist with the decision to abandon ship. Work on both these areas has been undertaken by correspondence and is presented for consideration.

This item is expected to be discussed in a working group.

The target completion date for this item is 2013.

Background

Changes to regulation II-1/8-1 have been adopted at MSC 90 (May 2012) and will come into effect from 1 January 2014. These changes will require the provision of a computer either on board or ashore which can calculate stability and strength after damage to any selection of compartments. Guidelines on the information which is to be provided has been given in MSC.1/Circ.1400 “Guidelines on operational information for Masters of passenger ships for safe return to port by own power or under tow”.

Concern has been raised that existing guidance on the functionality of the computer programs is inadequate, and that further guidance is needed for these specific computers.

There has also been continuing research into the ability of computational fluid dynamics programmes to accurately model flooding. This is needed because SOLAS regulation II-2/22.3.2 requires the fire main, internal communications, external communications, bilge systems for the removal of fire-fighting water, lighting along escape routes etc. and guidance systems for evacuation, to remain operational for at least 3 hours after a fire incident.

Lloyd’s Register’s position

Lloyds Register supports the development of guidelines for damage stability computers and especially how such computers should be approved.
LR also supports that the discrepancies found in resolution MSC.245(83) are solved as soon as possible as the resolution is currently in use for verifying and calculating time for cross flooding.

Advice to Clients

**General** All clients with interests in passenger ships to which the safe return to port requirements are applicable are advised to be aware of the developments.

**Owners / operators** of affected passenger ships will have to consider training for crew where an onboard system is chosen. Any standards which are developed will help to ensure that systems meet a minimum standard.

**Designers and builders** should already be considering the impact of the safe return to port requirements and the need to provide computers. It must further be considered that the proposed changes to the Resolutions MSC.245(83) and MSC.281(85) as well as to SOLAS Ch. II-1 Regulation 7-2 with regards to cross flooding calculations will lead to increased time to cross flood and thereby the need for larger cross flooding pipes or ducts.

**Manufacturers** of computer systems should monitor developments and be prepared for any standards which are developed.
Flag Administrations and their Recognized Organizations are encouraged to follow developments and start to make any preparations they can, e.g. decide what would be acceptable in a computer system, how computer systems will be approved, whether certification will be required, whether regular confirmation of usability and accuracy is required (e.g. annual survey). The functionality of the system will differ from those used to assess damage stability requirements as it will have to help ascertain whether or not a loading condition is suitable to continue on a voyage from a to b and not whether a set of criteria are met or not. Clear guidelines on how such computers are to be approved will be needed.

Applicability

The safe return to port requirements apply to passenger ships with a length of 120 metres or more or having three or more main vertical fire zones. Certain systems are required to remain operational for at least 3 hours after a fire incident (SOLAS II-2/22.3.2).

The requirement to provide computer assistance will be applicable to passenger ships to which the safe return to port requirements apply whose keels are laid on or after 1 January 2014.

Documents Submitted

SLF 55/4 (United Kingdom) – Report of the SDS Correspondence Group
The correspondence group established at SLF 54 had one round of discussion on the subjects of amendments to resolution MSC.245(83) on cross-flooding and guidance for computer programs and the information provided to the master. A number of changes to MSC.245(83), MSC.281(85) as well as to SOLAS Ch. II-1, Reg. 7-2 with regards to cross flooding are proposed. Further, a number of questions relating to the computer programs which carry out damage stability calculations are put forward which are expected to be discussed at SLF 55.

SLF 55/4/1 (Finland) – Explanations on cross-flooding
This paper sets out two proposals for amending resolution MSC.245(83) to ensure that the resolution accurately reflects what happens in practice during cross-flooding. One option is to include an outlet effect into the equation for flow reduction factor and make associated changes where necessary to subsequent equations. The other option is to add the outlet factor to the equation for total pressure losses.

SLF 55/4/2 (Japan) – Technical background of the revised regression formulate for cross-flooding duct in resolution MSC.245(83)
This paper also examines resolution MSC.245(83) and proposes an amendment to the regression formulae so that it better reflects experimental and computational results of cross-flooding fluid motion in a duct. The technical justification for the proposed amendment is also provided.

Return to overall summary at start of document
Annex 3 Development of guidelines for verification of damage stability requirements for tankers (agenda item 5)

Overview

It has been agreed in principle that tankers will be required to have a computer program installed (sometimes known as a loading instrument) which is capable of calculating the damage stability for the ship in accordance with the appropriate regulations. (See also agenda item 6 for this meeting.) It was also agreed that guidelines on what exactly the program should be able to do were also needed. Draft guidelines are expected to be finalised at this session of SLF (SLF 55).

This item is expected to be discussed in a drafting group.

The target completion date for this item is 2013.

Background

There are requirements in SOLAS, MARPOL, IBC Code and IGC Code for damage stability to be assessed on tankers and bulk carriers. At its last session the SLF sub-committee decided to develop suitable amendments to SOLAS (see agenda item 6) to require the provision of a computer capable of carrying out the necessary calculations. It also agreed that guidelines were necessary to specify exactly what the computer should be able to do and how it should do it.

Previously a correspondence group had developed some draft guidelines for tankers and this text was extensively discussed at the last meeting of SLF. The text is separated into two parts covering design and operational guidance. Part 1 addresses the approval of tanker damage stability calculations. This text is based on IACS Recommendation 110 with some re-wording of technical requirements and additional instructions on the application of modelling tolerance. Part 2 covers the operational aspects and details how compliance with damage stability can be demonstrated. It should be noted that no agreement was achieved on what a “permitted variation” from an approved loading condition would be. This will have to be decided by flag administrations separately.

Lloyd’s Register’s position

LR will follow the discussions to ensure that the guidelines are practical and do not deviate too far from IACS recommendation 110. LR would welcome clarity on the issue of whether freeboards can be assigned at a draught for which damage stability has not been calculated, i.e. a Tropical freeboard can only be assigned if damage stability calculations have been carried out at the corresponding draught.

Advice to Clients

Owners / operators should ensure that any stability programs provided on board a ship comply with the guidelines.

Designers and builders should be aware of the guidelines, and ensure that any stability programs provided to the ship comply with them or an equivalent.

Manufacturers of stability programs will have clear guidance on the calculation of damage stability. They should review their programs in light of the guidance and make changes as necessary.

Flag Administrations and their Recognized Organizations will have to determine what will be an acceptable variation from an approved loading condition which will mean that an existing calculation can be used to demonstrate compliance with damage stability requirements. It is suggested that this information should be included in the stability documentation provided on board the ship.
Applicability

These guidelines are applicable to all stability calculation programs which have the capacity to calculate damage stability.

Documents Submitted

SLF 55/5 (China, Germany, Italy and IACS) – Comments on damage stability verification for tankers with assigned freeboards less than summer load line; for example, with an assigned tropical freeboard

The co-sponsors of this paper identify the different draughts to which stability calculations are to be done in different IMO instruments. Due to the inconsistencies the paper is asking the Sub-Committee to clarify whether damage stability should be calculated at all draughts for which freeboards have been assigned.

Return to overall summary at start of document
Annex 4 - Development of mandatory carriage requirements for stability instruments on board tankers (agenda item 6)

Overview

There is a concern that some tankers are not able to confirm that their specific loading condition complies with the relevant damage stability requirements. To address this issue the last session of SLF (SLF 54) agreed in principle that a computer program capable of calculating the damage stability should be provided onboard all tankers. Work under this agenda item will consider proposed amendments to MARPOL, IBC Code, IGC Code to mandate the provision of this equipment. See also agenda item 5 in this sub-committee for the development of associated guidelines.

This item is expected to be discussed in a drafting group.

The target completion date for this item is 2013.

Background

The last session of SLF agreed that it should be mandatory for tankers to carry on board a stability calculation program to enable the crew to demonstrate compliance with the relevant damage stability requirements. At the same session guidelines on what the program should be able to do and allowable tolerances were agreed (see also agenda item 5 for this session).

Procedural requirements in the IMO required that this proposed work be agreed by the Maritime Safety Committee. This permission has been granted and delegations were invited to prepare amendments to MARPOL, the IBC Code and the IGC Code to mandate the carriage of this sort of program.

Lloyd’s Register’s position

LR will carefully review the proposed amendment to ensure that the application criteria and dates are very clear. It should be remembered that there will be an associated impact on the survey guidelines under the harmonized system of survey and certification (resolution A.1053(27)) as given in paper SLF 55/6.

Advice to Clients

Owners / operators should prepare ahead for the implementation of these requirements. Approval of stability instruments requires time and cannot be done at the last minute. All proposals permit the continued use of previously installed stability instruments which can do the calculations. Crew members will need to be trained in the use of the programs and be confident that they can demonstrate compliance to port state officers when requested.

Designers and builders will need to be aware of the requirements and be prepared to supply an approved stability instrument to tankers being built.

Manufacturers will need to ensure that their stability programs are approved for use. This approval process can take some time and it is recommended that early application to the relevant authorities is made.

Flag Administrations and their Recognized Organizations will need to have sufficient staff trained in the approval of stability instruments to enable them to approve the stability computers. Flag Administrations will need to train port state control inspectors in the different possibilities for compliance.
Applicability

These amendments are applicable to new and existing ships. Existing ships will have to fit a stability instrument by the first scheduled dry-docking of the ship from a date still to be determined. This date is expected to be 1 July 2016 but is subject to change.

Documents Submitted

SLF 55/6 (United Kingdom) – Proposed amendments to international instruments
The United Kingdom has identified seven different statutory instruments which require amendment to ensure that all tankers are provided with a means to confirm compliance with the relevant damage stability requirements.

SLF 55/6/1 (United States) – Proposed amendments to MARPOL 73/78 Annex I, the IBC and IGC Codes, relating to the mandatory carriage of stability instruments on board tankers
Alternative text for amendments to MARPOL, the IBC and IGC Codes is proposed by the United States in this paper.

Return to overall summary at start of document
Annex 5 - Review of the damage stability regulations for ro-ro passenger ships (agenda item 7)

Overview

A number of administrations have concerns that the probabilistic damage stability requirements contained in SOLAS do not provide the same level of safety as those which were contained in the older deterministic SOLAS requirements and the Stockholm Agreement. As part of the general review of damage stability requirements which SLF has been doing for some time, it was also identified that some damage situations can lead to a rapid capsize, particularly on ro-ro passenger ships with long lower holds. Several research projects have been underway to investigate these issues, the results of which are expected to be discussed at this SLF meeting.

This item is expected to be discussed in a working group.

The target completion date for this item is 2013.

Background

Concerns raised by administrations are focused on the fact that under the probabilistic requirements there is the possibility that a ship will sink under a given damage scenario but that there will be sufficient survivable damage scenarios to mean that overall compliance is achieved. Preliminary research indicated that ships with long lower holds are particularly susceptible to rapid capsize after damage when water is present on the lower deck forming that hold.

The original scope of the work has been expanded to include any other damage stability issues relating particularly to ro-ro passenger ships which may be identified during the research.

Four research projects have been looking at ro-ro passenger ship issues: FLOODSTAND, GOALDS, EMSA(2) AND RP625. Due to time restrains the results from GOALDS were not discussed within the SDS Correspondence Group. However, these results are presented in INF papers and are expected to be discussed at this session of SLF.

The correspondence group which was established at SLF 54 discussed some matters which were not being addressed by research projects:

- Whether SOLAS Chapter II-1, regulation 17-1.1.2 may have been an oversight. It currently suggests weathertight ramps for ro-ro passenger ships whereas watertight ramps are required for cargo ships (reg. 13-1.4).
- Whether a new regulation should be included in SOLAS to include a minimum freeboard requirement.
- Whether ramp boundaries leading to long lower holds on ro-pax ships should be made watertight.

Proposals for amendments to the $s$ calculation to account for water on deck are put forward.

Lloyd’s Register’s position

LR will be closely monitoring the discussion in the working group which is expected to be established and will contribute as appropriate. LR supports the development for amending $s$ to account for water on deck.
Advice to Clients

**General** This is still in the early stages of development. Depending on the conclusions reached by the various research projects and the discussions at the IMO there could be changes to the damage stability requirements for passenger ships and consequent changes to designs. Those with an interest are encouraged to follow developments.

**Applicability**

Any changes agreed will be applicable to passenger ships and ro-ro passenger ships. Full details of the applicability will be finalised when the work is complete.

**Documents Submitted**

**SLF 55/7 (United Kingdom) – Report of the SDS Correspondence Group**
The SDS Correspondence Group intended to review the results of the various research projects as they were published. Unfortunately in depth discussion was not possible. It was agreed, however, that a minimum freeboard requirements should NOT be included in SOLAS. Further, it was agreed that Regulation 13-1.4 of SOLAS Ch. II-1 should remain unaltered. It was also agreed that where a weathertight on a ro-ro passenger ship ramp (as currently required in SOLAS Ch. II-1, Reg. 17-1.1.2) was submerged after flooding then this should result in an $s$ value of zero. Matters relating to the weather ramp boundaries leading to long lower holds on ro-ro passenger ships should be watertight or weathertight are referred to the SLF Sub-Committee.

**SLF 55/7/1 (Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and the European Commission) – Changes to the $s$ formulation**
This paper introduces three approaches to modify SOLAS to take into account the effects of water on deck on ro-ro passenger ships. Three related information papers (SLF 55/INF.6, SLF 55/INF.10 and SLF 55/INF.13) give more background on the basis for the proposals.

**SLF 55/INF.6 (European Commission) – Damage stability parameters of ro-ro passenger ships according to SOLAS 2009 amendments, including water-on-deck calculations**
This paper reports on the results of the EMSA(2) study. It proposes some changes to the factors $s$, $w$, $k$ and $R$ in the probabilistic damage stability calculations. These changes are supported by a study of five ships and by a cost-benefit analysis to confirm that the benefits were justified. It also questions whether the current assumption that 1 accident in 20 years involving 1000+ people is acceptable.

**SLF 55/INF.7 (Denmark and the United Kingdom) – The GOAL based Damage Stability project (GOALDS) – Derivation of updated probability distributions of collision and grounding damage characteristics for passenger ships**
This substantial paper gives a statistical report on the data available for grounding and collision damages. The statistics from the HARDER project have been taken and enhanced by including subsequent damage information. The new combined data has been used for the GOALDS research. The outcome shows that the present SOLAS distributions for the damage length due to ship-ship collision can still be considered valid. It is further mentioned that a fully probabilistic approach to grounding damages for regulatory purposes is at this stage not possible.

**SLF 55/INF.8 (Denmark and the United Kingdom) – The GOAL based Damage Stability project (GOALDS) – Derivation of updated probability of survival for passenger ships**
The results of the GOALDS research into collision and grounding damages are presented in this paper. A new $s$ factor is proposed which requires the calculation of the residual volume after damage.
SLF 55/INF.9 (Denmark and the United Kingdom) – The GOAL based Damage Stability project (GOALDS) – Development of a new risk-based damage stability requirement for passenger ships based on Cost-Benefit Assessment
This paper contains details of a cost benefit analysis which has been carried out to demonstrate that a change to the required index (R) for passenger ships would be justified.

SLF 55/INF.10 (United Kingdom) – A method of assessment of ro-ro stability to include the effect of water-on-deck
This paper proposes that, for ro-ro passenger ships, further calculations be done to determine the survival wave height based on the s factor for each damage scenario. If the ro-ro deck is in way of the damage then, depending on whether this survival wave height is greater than the residual freeboard sufficient to prevent water accumulating on deck or not, further calculations are done.

SLF 55/INF.13 (Germany and CESA) – Improving the survivability of ro-ro passenger ships
This paper propose a new water on deck s factor for ro-ro passenger ships for any damage penetrating the ro-ro cargo area, regardless of whether that area is above or below the bulkhead deck. The new s factor has been derived using the GZ criterion for intact stability as defined in the 2008 IS Code.

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Annex 6 - Revision of SOLAS chapter II-1 subdivision and damage stability regulations (agenda item 8)

Overview

Amendments to SOLAS chapter II-1 to harmonize cargo ship and passenger ship damage stability have been in force since 1 January 2009. These amendments made probabilistic damage stability the main method for calculating damage stability. Since the amendments have entered into force the need for a number of revisions has become apparent. A major review of the subdivision and damage stability requirements contained in chapter II-1 of SOLAS has been undertaken. Progress with this review and proposed amendments will be discussed.

This item is expected to be discussed in a working group.

The target completion date for this item is 2013.

Background

Experience in the use of the “new” SOLAS chapter II-1, which came into effect on 1 January 2009, (resolutions MSC.194(80) and MSC.216(82)), has identified a number of areas where improvements could be made either to the text of SOLAS or to the associated explanatory notes (resolution MSC.281(85)).

The SLF sub-committee has been discussing possible amendments for a number of years and at its last session agreed to a number of changes. Further discussions have been taking place in a correspondence group with the aim of preparing some text for agreement at this session of SLF.

Included in the discussion was the issue of butterfly valves at the collision bulkhead. This was discussed in the correspondence group but no consensus was achieved. The matter will be further discussed at this session of SLF.

Lloyd’s Register’s position

LR has followed the work at previous sessions of SLF and in the correspondence group. LR hopes that the issue of butterfly valves at the collision bulkhead can be resolved. LR will continue to contribute to this work where practical.

Advice to Clients

General All clients are encouraged to review the work. Some of the proposed changes could have a significant impact on ship design.

Applicability

Details of application are still to be determined.

Documents Submitted

SLF 55/8 (Chairman of the Working Group) – Report of the working group at SLF 54 (part 2)

This paper provides the draft texts for amendments to SOLAS and the associated Explanatory Notes as at the conclusion of work at SLF 54. These were the basis for discussions in the intersessional correspondence group which was established to progress work on amendments to SOLAS II-1.
SLF 55/8/1 (Germany) – Proposal for amendments to SOLAS regulation II-1/4
There has been considerable discussion about the application of the probabilistic damage stability requirements and their application to ships which have to comply with damage stability requirements in other statutory instruments. This paper is another attempt to try and resolve the issue, particularly that of not making non-mandatory instruments mandatory by their inclusion in the text of SOLAS.

SLF 55/8/2 & Add.1 (United Kingdom) – Report of the SDS Correspondence Group
This paper provides information about the discussions held in the correspondence group which has been working intersessionally since SLF 54. Where some amendments to SOLAS chapter II-1 have been discussed and agreed by a majority of the correspondence group members these have been identified, as have those items which still require resolution.

SLF 55/8/3 (Republic of Korea) – Proposals for the revision of the Explanatory Notes for the application of SOLAS regulation II-1/9 to cargo ships of less than 80 m in length
There has been some discussion about the application of regulation II-1/9 to shorter cargo ships and determining an equivalent level of safety. There was insufficient support in the SDS correspondence group for the proposals so they have been submitted separately. The proposal is to exclude the machinery space, if located aft, from the damages assumed.

SLF 55/8/4 (United States) – Regulation text proposals
The United States believes that the phrase “all ships” has been mistakenly used in some regulations, and proposes alternative text. Further text is proposed to clarify the loading condition which should be used with regulations II-1/8.1, II-1/8.2 and II-1/9.8, also to address the issue of the use of glass in watertight bulkheads. A clarification for the deepest subdivision draught is also proposed.

SLF 55/8/5 (United States) – Improving the survivability level of passenger ships
This paper proposes that the subdivision index R for passenger ships should be reviewed as part of the IMO’s investigations into statutory requirements following the loss of the Costa Concordia.

SLF 55/8/6 (United States) – Comments on document SLF 55/8/1 regarding SOLAS regulation II-1/4
In this paper the United States looks at the problems relating to referencing non-mandatory texts in the body of a SOLAS regulation, the application of SOLAS regulation II-1/5-1 to all cargo ships, the applicability of all of Parts B-1 to B-4 and the use of the phrase “all cargo ships” or “all passenger ships”. Alternative text for use in SOLAS is proposed.

SLF 55/8/7 (United States) – Comments on documents SLF 55/8/2 and SLF 55/8/2/Add.1 regarding the application of amendments to SOLAS chapter II-1
When regulations in SOLAS are amended it is very important to be clear on the intended application to avoid existing ships having to comply with regulations which it was never intended that they should have to comply with. This paper raises this point with the SLF sub-committee for consideration in its deliberations on amendments to SOLAS chapter II-1.

SLF 55/8/8 (Liberia and IADC) – Proposal for amendments to SOLAS regulation II-1/4
This paper questions why the MODU Code was never added to the list of alternative instruments compliance with which provides and exemption from the need to meet the damage stability requirements of Parts B-1 to B-4 of SOLAS chapter II-1.

SLF 55/INF.12 (Germany and Norway) – Safety study – Collision in the context of the development of the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels
This paper presents a risk assessment which was jointly carried out by DNV and GL to look at the chances of a collision damaging an LNG fuel tank on an LNG fuelled vessel. The effect of tank position, and hence possible deterministic damage extents are also considered. See also paper SLF 55/16/4.

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Annex 7 - Development of provisions to ensure the integrity and uniform implementation of the 1969 TM Convention (agenda item 9)

Overview

The 1969 Tonnage Measurement Convention (TM Convention) was developed some time ago. Due to a number of factors, e.g. the reliance on tonnage as a basis for application of other statutory requirements and the lack of tacit acceptance for amendments, it has not been practical to amend the Convention. However the development of different ship types has lead to inconsistencies in the application of the tonnage calculations. To address this the SLF sub-committee is looking at where the problems with the TM Convention are and what can be done to ensure that proposed solutions are applied consistently.

This item is expected to be discussed in a working group.

The target completion date for this item is 2014.

Background

The tendency of various bodies to base their fees on gross tonnage has lead to a desire to reduce the overall enclosed space on a ship. The effect has seen pressure to reduce crew numbers and crew accommodation which has a consequence of reducing the space available for berths for trainees and a subsequent impact on manning levels. The lack of training berths may mean that onboard training may not be undertaken which introduces concerns about the competency of newly assigned crew. There is also pressure to store safety equipment in open spaces which do not contribute to the gross tonnage or to reduce the quantity of safety related equipment which requires storage in an enclosed space.

The 1969 International Convention on Tonnage Measurement of Ships (TMC) does not have tacit acceptance procedures, i.e. an amendment automatically enters into force after adoption. This makes any changes to the regulations very difficult to achieve. There is a circular, TM.5/Circ.5, on “Interpretations of the provisions of the International Convention on Tonnage Measurements of Ships, 1969” which sets out some agreed interpretations. Given the difficulties in changing the TMC it has been agreed that the best way to ensure consistency in the application of the regulations is to review TM.5/Circ.5 and update it to cover issues which have arisen since it was produced.

The SLF sub-committee established a correspondence group to further discuss the issues involved. Some progress has been made, but further work is needed.

Lloyd’s Register’s position

LR has been actively involved in the correspondence group and will participate in the working group which it is expected will be established to progress this item.

LR is concerned about the possible use of the Maritime Labour Convention as a basis for an assessment as the text in that Convention has been deliberately left vague. Its use will lead to inconsistencies in the application of any reductions calculated using the MLC as a basis for inclusion.

Advice to Clients

General All clients are encouraged to follow the discussions and provide input to their Administration or industry body. The measurement of tonnage affects all ships and changes in the way it is measured can have a significant impact on design.
Flag administrations and recognised organisations should be aware of the length of time that was required before the 1969 TMC became universally used. Not applying new requirements to existing ships can lead to confusion with different ships measured to different requirements.

Applicability

Once agreed the interpretations will be applicable to all ships. At this stage it is not possible to give a specific date for the application or to indicate whether they will apply only to new ships or to all ships which are remeasured.

Documents Submitted

SLF 55/9 (United States) – Report of the correspondence group
This paper reports on the work which the intersessional correspondence group did in three rounds of correspondence between February and October 2012. Issues and possible solutions were identified, then the proposed solution text was examined. Proposed amendments to TM.5/Circ.5 are presented together with a draft Assembly resolution. This paper is linked with SLF 55/INF.2.

SLF 55/9/1 (Italy) – Proposals for solutions to the issues previously identified with the 1969 TM Convention
This paper discusses two of the issues identified by the correspondence group and states a preference for different options. Some diagrams to assist with understanding one of the proposed solutions are presented in an annex.

SLF 55/9/2 (IACS) – Comments on the report of the correspondence group
IACS proposes some text for two of the issues raised in the correspondence group, and advises that diagrams to support proposals are presented in related paper SLF 55/INF.11.

SLF 55/9/3 (Germany, India, the United States and the International Transport Workers’ Federation) – Reduced gross tonnage for accommodation spaces
This paper proposes a method for calculating a reduced gross tonnage to account for accommodation spaces which could then be used as the basis for fees, thus reducing the drive to minimise accommodation on ships.

SLF 55/9/4 (United States) – Comments on the report of the correspondence group
This paper considers the issue of what constitutes a “substantial” alteration after which remeasurement is required. A current value of 1% is commonly used, and it is proposed to either abolish a limit completely and leave it up to individual flag administrations to determine when remeasurement is required, or to set the limit at 5%.

SLF 55/9/5 & Corr.1 (Japan) – Comments on the report of the correspondence group
This paper looks at the various issues associated with whether a grating encloses a space or means that a space may be excluded from the tonnage calculation or acts to prevent a space being considered open to the sea. Paragraph 8 of the paper is corrected in SLF 55/9/5/Corr.1 to show the amendments which have been made.

SLF 55/INF.2 (United States) – Information collected by the correspondence group
This paper provides the detailed information which the correspondence group considered during the course of its work. It provides the basis for the conclusions drawn in the report of the correspondence group as presented in paper SLF 55/9.

SLF 55/INF.11 (IACS) – Comments on the report of the correspondence group
This document provides a series of diagrams which help clarify some of the proposed amendments to TM.5/Circ.5.

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Annex 8 - Development of amendments to part B of the 2008 IS Code on towing and anchor handling operations (agenda item 10)

Overview

Following the sinking of the “Bourbon Dolphin” while undertaking anchor handling duties in the North Sea, it was agreed that some statutory requirements were needed to look at the stability of vessels which undertake towing and anchor handling. A number of amendments have been proposed to be included in part B (the non-mandatory part) of the 2008 Intact Stability Code.

This item is expected to be discussed in a working group.

The target completion date for this item is 2014.

Background

This is a new work programme item proposed by Norway following the sinking of the “Bourbon Dolphin” while undertaking anchor handling at an offshore rig. The proposal is to develop requirements for tug duties – towing (harbour, inshore and offshore), anchor handling, and vertical lifting (escort duties are excluded) - and to develop associated operational guidance in the form of limiting operational criteria (max lifting forces, weather conditions, limiting curves of heeling moment vs. displacement).

Part B of the 2008 Intact Stability Code will be amended. This is the non-mandatory part of the code so it will be up to individual flag Administrations to decide whether to require compliance for relevant ships or not.

Intersessionally interested parties were encouraged to contact the Norwegian delegation which volunteered to be a focus point for joint submissions.

Lloyd’s Register’s position

LR will monitor the discussions at SLF.

Advice to Clients

General If relevant.
Owners / operators as necessary
Designers and builders as necessary.
Manufacturers as necessary.
Flag Administrations and their Recognized Organizations as necessary.

Applicability

Details of application

Documents Submitted

SLF 55/10 (Denmark, Norway, the United States, Vanuatu and IMCA) – Proposal for amendments to the International Code on Intact Stability, 2008 (2008 IS Code)

This paper proposes some text for inclusion in the 2008 IS Code to cover towing and anchor handling operations. Proposals are also made regarding lifting operations, although these are only tentative.
on all proposals are encouraged in the paper, in particular the provision of a limiting KG or GM curve, a review of applicable criteria and the need for operational guidance. The related information paper is SLF 55/INF.4.


This paper provides some technical background for the criteria proposed in paper SLF 55/10

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Annex 9 - Consideration of IACS unified interpretations (agenda item 11)

Overview

When IACS finds some vague terminology or requirements in statutory requirements it develops unified interpretations to ensure consistency in their application among its members. These unified interpretations are presented to the relevant sub-committees at the IMO so that member governments can decide whether they agree that the interpretation is acceptable.

This item is expected to be discussed in plenary.

The topic is a continuous agenda item.

Background

Since the last session of SLF, IACS has discussed one subject on a matter which is of relevance to the SLF sub-committee.

Trunks and the application of ILLC regulation 36(6)
Some ships have a continuous hatchway which may be considered as a trunk under regulation 36(6) of the Load Line Convention. The applicability of this regulation when there is more than one hatchway is not so clear. IACS requests the SLF Sub-Committee to provide its views on the matter so that a unified interpretation can be developed.

Lloyd’s Register’s position

LR will closely monitor the discussion. LR has participated in the discussion of the matter in IACS and hopes that clarity will be provided.

Advice to Clients

General All clients should be aware that LR will implement agreed IACS unified interpretations unless instructed otherwise by flag administrations.

Applicability

When developed the unified interpretation will be applicable to ships which are fitted with hatchways which can be considered as a trunk under the Load Line Convention.

Documents Submitted

SLF 55/11 (IACS) – Application of ILLC regulation 36(6) relating to “Trunks”
This papers asks the SLF Sub-Committee to clarify the application of regulation 36(6) to hatchways where more than one hatchway coaming exists which meets the definition of what may be considered as a trunk under the Load Line Convention.

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Annex 10 - Development of amendments to the criterion for maximum angle of heel in turns of the 2008 IS Code (agenda item 12)

Overview

There is an apparent inconsistency in the requirements for the maximum angle of heel in turns and that for the minimum turning circle. Amendments to the current requirements for the maximum angle of heel in turns in the 2008 IS Code are being proposed to introduce some consistency and provide some flexibility for demonstrating compliance with the requirements.

This item is expected to be discussed in plenary.

The target completion date for this item is 2013.

Background

This agenda item was included to cover the problem that the current formula for assessing the maximum angle of heel in a turn assumes a diameter of turn equal to 10 ship lengths. This is inconsistent with the standards for ship manoeuvrability contained in resolution MSC.137(76), which recommends 5 ship lengths as a maximum.

At the last session of SLF there was some discussion on the proposed amendments to the 2008 IS Code which centred on which part of a turn the current criteria were addressing – the transient angle of heel caused by moving the rudder or the steady state angle of heel that develops after the ship has settled to the new heading. Concerns were also raised about the lack of detail on what would be acceptable for model tests and the possible lack of information for some of the proposed parameters at the design stage. It was agreed that as the intact stability correspondence group already had much to consider further proposals should be submitted to this session of SLF.

Lloyd’s Register’s position

LR supports a review of the formula. Care needs to be taken to ensure that any proposals are practical. The master should be advised of expected heeling angles during turns.

Advice to Clients

Designers and builders of passenger ships should be aware of the discussions and review the proposed amendments to assess the potential impact on their ships.
Manufacturers of programs which calculate intact stability for passenger ships should be aware that the formula is likely to be changed.
Flag Administrations and their Recognized Organizations need to be aware of the discussions and that a change is likely.

Applicability

If agreed the application of the amendment will be to passenger ships constructed on or after a date still to be determined.
Documents Submitted

SLF 55/12 (Royal Institution of Naval Architects (RINA)) – Revised proposals for amending the 2008 IS Code
This paper identifies 10 issues with the current requirements in the 2008 IS Code for limiting the heel of passenger ships in turns. To address these it is proposed that there should be a simple requirement limiting the angle of heel to 15 degrees in the transient stage and 10 degrees in the steady-state condition. This requirements should be confirmed as being met at sea trials. It further proposes that where the criteria cannot be met then guidance to the master and/or limiting devices on the helm should be used.

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Annex 11 - Development of a mandatory Code for ships operating in polar waters (agenda item 13)

Overview

With the increase in shipping activity in Antarctica and the possibility of the Arctic being ice free for at least some of the year, it has been agreed that mandatory requirements for ships operating in the Polar regions are needed. These requirements would be in addition to any existing requirements in SOLAS or MARPOL. The sub-committee on design and equipment has been developing text for the mandatory code and has requested other sub-committees to review proposals which come under their remit. Chapters 3 and 4 of the draft Polar Code have been submitted to SLF for its consideration.

This item is expected to be discussed in plenary.

The target completion date for this item is 2013 in SLF.

Background

There have been voluntary guidelines for ships operating in polar waters for some time. With the increase in shipping in both the Arctic and the Antarctic it was agreed that mandatory requirements are needed. The DE sub-committee has been working on a new Code for ships operating in Polar Waters for some time. The work has reached a stage where specialist advice on certain aspects is needed from other sub-committees. Chapters 3 and 4 of the draft code have been sent to the SLF sub-committee as these contain requirements relating to stability and load line.

Lloyd’s Register’s position

LR has been following the discussions closely in the DE sub-committee, and will provide advice where practical to the SLF sub-committee.

Advice to Clients

- General  Clients with an interest in operations in the Polar regions are advised to follow the discussions.
- Owners / operators as necessary
- Designers and builders as necessary.
- Manufacturers as necessary.
- Flag Administrations and their Recognized Organizations as necessary.

Applicability

The Polar Code will only be applicable to ships operating in Polar waters.

Documents Submitted

SLF 55/13 (Secretariat) – Outcome of DE 56 and MSC 90
This paper provides an excerpt from the draft Polar Code with the matters for the consideration of the SLF sub-committee. The draft text includes requirements for both intact and damage stability. It should be noted that the Polar Code requirements will apply in addition to any requirements in other IMO instrument.

SLF 55/13/1 (United States) – Comments on document SLF 55/13
The United States proposes that amendments could be made to the 2008 IS Code to ensure that the requirements of the Polar Code for ice accretion are adequately covered, noting that currently the 2008 IS Code
limits ice accretion to certain ship types. It questions the need for additional freeboard and identifies inconsistent text. The paper also comments on the double bottom provisions and those relating to the location of tanks.

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Annex 12 - Any other business (agenda item 16)

Overview

Any matters which need to be brought to the attention of the sub-committee but do not fit under one of the agenda items will be discussed under this item.

Documents have been submitted on the following matters for consideration at this session:

1. Inclinometers and the prediction of parametric roll
2. The Cape Town agreement on Torremolinos and how to count fishing vessels
3. Damage stability for offshore supply vessels carrying limited quantities of noxious liquid substances
4. The protection of tanks carrying LNG or LPG as fuel or cargo.
5. The revisions to the IGC Code.

This item is expected to be discussed in plenary.

This is a continuous agenda item.

Background

Any matters which need to be brought to the attention of the sub-committee but do not fit under one of the agenda items will be discussed under this item.

Inclinometers
The Navigation sub-committee agreed (NAV 58) some performance standards for electronic inclinometers. These performance standards include a requirement to advise on the expected accelerations at the location where the inclinometer is installed and options for alerting the master when certain angles of heel are reached, and when there is a danger of parametric or synchronous roll is likely. The performance standards have been passed to the SLF sub-committee so that it could provide input on appropriate alarm levels.

The Cape Town agreement on the Torremolinos Protocol on the Torremolinos Convention on the Safety of Fishing Vessels and how to determine the number of fishing vessels
The Torremolinos Convention on the Safety of Fishing Vessels has still not entered into force. In an attempt to get it ratified and improve the safety of fishing vessels and Agreement was reached at Cape Town in October 2012. One of the entry into force criteria is the number of fishing vessels, and there are now discussions on how this number is to be determined. A number of different options have been submitted for the consideration of the SLF sub-committee. There is also a proposal to extend the issue of the IMO ship number, currently required for cargo and passenger ships, to fishing vessels.

Damage stability for offshore supply vessels carrying limited quantities of noxious liquid substances
The BLG sub-committee is currently looking at the requirements for offshore supply vessels which carry limited quantities of noxious liquid substances. One of the areas which is being considered is damage stability and the standard which these vessel should comply. The paper submitted under this agenda item proposes some damage stability criteria.

The protection of tanks carrying LNG or LPG as fuel
The BLG sub-committee is currently developing a code for ships which use LNG or LPG as a fuel. One of the requirements being considered is the location of the fuel tanks. The submitted paper considers the different tank location requirements which are present in SOLAS and the existing IGC Code, and proposes some text for the developing IGF Code.

The revisions to the IGC Code
The BLG sub-committee is also reviewing the IGC Code and has requested that SLF review its proposals for amendments to this Code which are related to stability.
Lloyd’s Register’s position

Inclinometers. While LR welcomes the performance standard for electronic inclinometers we are concerned that it will not be practical to provide an alarm when there is a danger of parametric roll. The SLF sub-committee has been trying to develop criteria to determine which designs are susceptible to parametric roll for some years (see agenda item 3) and is still to come to a conclusion.

Numbers of fishing vessels. LR will monitor the discussions as part of its preparations for the eventual implementation of the Torremolinos Convention, its Protocol and the Cape Town Agreement. Fishing vessel safety is very poor and the early entry into force of this Convention will improve the safety of fishermen on the high seas.

Stability issues. LR notes the debate in BLG on the various Code and guidance documents where stability has an important part. LR attends BLG and has provided input to the debate which is underway in that sub-committee. Where practical LR will contribute to the debate at SLF as well.

Advice to Clients

General All clients should monitor the discussions where relevant to their own work.

Owners / operators of fishing vessels should be aware that some of the requirements in the Torremolinos Convention apply to existing fishing vessels as well as new fishing vessels. How the number of fishing vessels is calculated may mean that the Convention will come into force before 2020.

Designers and builders are advised that some of the proposals may have a significant impact on the design of ships (OSVs, IGF or IGC Code compliant ships).

Manufacturers of electronic inclinometers should review the contents of the proposed performance standard and consider how they are going to meet the requirements included in it.

Flag Administrations will need to consider how they will count the number of fishing vessels which are flagged with them which meet the definition of fishing vessel in the Torremolinos Convention. Flag Administrations should also consider whether, when and how they will implement the Cape Town Agreement and thus Torremolinos and its Protocol.

Applicability

Details of application are not currently possible to determine.

Documents Submitted

SLF 55/16 (Secretariat) – Outcome of NAV 58 Development of performance standards for inclinometers
This paper advises the SLF sub-committee of the draft performance standards for electronic inclinometers which the NAV sub-committee has developed. The SLF sub-committee has been requested to provide some advice on possible alarms which should be included in the performance standard.

SLF 55/16/1 (South Africa) – Outcome of MSC 91 Procedure for calculating the number of fishing vessels of each Contracting State by the Depositary
This paper discusses the problems associated with calculating the number of fishing vessels which operate on the high seas, and recommends that Member States should report the number of fishing vessels.

SLF 55/16/2 (Secretariat) – Outcome of MSC 91 Procedure for calculating the number of fishing vessels of each Contracting State by the Depositary
This paper suggests different means of obtaining the number of fishing vessels from a variety of sources. It is suggested that the primary source be the flag administration with alternatives being used if the flag administration is unable to provide the data. The paper also suggests that the IMO number which is currently issued to all ships be extended to include fishing vessels, which would then provide a further method for calculating the number of fishing vessels.
SLF 55/16/3 (United States) – Damage stability standard for offshore support vessels that carry limited amounts of hazardous and noxious liquid substances in bulk
The BLG sub-committee is currently reviewing resolution A.673(16) and has asked the SLF sub-committee to review the damage stability requirements for offshore support vessels that carry limited amounts of hazardous and noxious liquid substances. This paper proposes some criteria for assessing the damage stability of these vessels.

SLF 55/16/4 (Community of European Shipyards’ Associations (CESA)) – Harmonizing distance criteria for gas fuel tanks and assumed penetration depth providing appropriate collision protection and damage stability
The BLG sub-committee is currently developing requirements for ships which use gas as a fuel – to be called the IGF Code. This paper proposes that the location of storage tanks should be specified and suggests some criteria.

SLF 55/16/5 (Food and Agriculture Organization of the United Nations (FAO)) – Development of a procedure for calculating the number of fishing vessels of each Contracting State of the 2012 Cape Town Agreement
This paper provides information on the records of fishing vessels which come under the purview of the FAO and are referred to in paper SLF 55/16/1.

SLF 55/16/6 (Japan) – Comments on procedure for calculating the number of fishing vessels of each Contracting State by the Depository
This paper supports the establishment of a database from which the number of fishing vessels can be easily established. It recommends that a procedure be established for counting the number of fishing vessels to ensure that the entry into force criteria of the Cape Town Agreement are met.

SLF 55/16/7 (Secretariat) – Outcome of BLG 16 Development of the Revised IGC Code
This paper advises that BLG 16 has requested the SLF sub-committee to review the revised IGC Code. Attendees to SLF should be aware that they will need to have a copy of BLG 17/9 to refer to. The relevant part is chapter 2, sections 2.2 to 2.7 (pages 16 to 28 of the annex).

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