TÜRK LOYDU RULE CHANGE SUMMARY

TL NUMBER: 01/2017 JANUARY 2017

Latest editions of TL Rules incorporate all rule changes. The latest rule revisions of a published rule are shown with a vertical line. Changes after the publication of the rule are written in red colour.

Please note that within this document added items are written in red and for deleted items strikethrough is applied. After the publication of relevant rule, those revisions are to be indicated with a vertical line. Following Rule Changes presented in English are also implemented into Turkish Version of Rules.

RULE CHANGE SUMMARY

CLASSIFICATION AND SURVEYS	
No	**Item**
01	Section 2
02	Section 3
CHAPTER 1 - HULL	
No	**Item**
01	Section 3
02	Section 6
03	Section 8
04	Section 18
05	Section 21
06	Section 23
07	Section 26
08	Section 28

09	**Section 29**
CHAPTER 2 - MATERIAL	
No	**Item**
01	**Section 3**
02	**Annex I**
CHAPTER 4 - MACHINERY	
01	**Section 2**
02	**Section 5**
03	**Section 6**
04	**Section 7**
05	**Section 8**
06	**Section 9**
07	**Section 10**
08	**Section 16**
09	**Section 18**
10	**Section 20**
CHAPTER 5 – ELECTRICAL INSTALLATIONS	
01	**Section 3**
02	**Section 14**
03	**Section 15**
04	**Section 17**
05	**Section 20**
CHAPTER 7 – HIGH SPEED CRAFTS	
01	**Section 1**
02	**Section 7**
03	**Section 8**
04	**Section 10**
05	**Section 11**
06	**Section 13**
07	**Section 14**
08	**Section 18**
09	**Annex I**
10	**Annex II**
CHAPTER 8 – CHEMICAL TANKERS	

01	**Section 2**
02	**Section 8**
CHAPTER 9 – CONSTRUCTION AND CLASSIFICATION OF YACHTS	
01	**Section 1**
CHAPTER 10 - LIQUEFIED GAS TANKERS	
01	**Section 2**
02	**Section 4**
03	**Section 6**
CHAPTER 33 – POLAR CLASS SHIPS	
01	**General**
CHAPTER 53 – SUBMERSIBLES	
01	**Section 02**
02	**Section 16**
CHAPTER 76 – ENVIRONMENTAL SERVICE SYSTEM	
01	**Section 1**
02	**Section 2**
CHAPTER 78 – RULES FOR CLASSIFICATION OF SHIPS USING GASES OR OTHER LOW-FLASHPOINT FUELS	
01	**Section 1**
CHAPTER 102 – NAVAL SHIP TECHNOLOGY, HULL STRUCTURES AND SHIP EQUIPMENTS	
01	**Section 7**
CHAPTER 105 – NAVAL SHIP TECHNOLOGY, ELECTRICAL INSTALLATIONS	
01	**Section 1**
02	**Section 3**
CHAPTER 107 – NAVAL SHIP TECHNOLOGY, SHIP OPERATION INSTALLATIONS AND AUXILIARY SYSTEMS	
01	**Section 8**
02	**Section 9**
ADDITIONAL RULES - SHIPBUILDING AND REPAIR QUALITY STANDARD	
01	**Section 1**
ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR LIFE SAVING APPLIANCES	
01	**General**

ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR THE IMPLEMENTATION OF MARPOL ANNEX VI AND NO_x TECHNICAL CODE	
01	**General**
ADDITIONAL RULE – TURK LOYDU SURVEY AND CERTIFICATION RULES ON ENERGY EFFICIENCY OF SHIPS (MARPOL 73/78 ANNEX VI, CHAPTER 4)	
01	**General**
ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR THE IMPLEMENTATION OF ILLC 1966 AND 1966-1988	
01	**UI LL**

CLASSIFICATION & SURVEYS

01. Section 2 - Suspension, Reinstatement and Withdrawal of Class

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item C.5.1.6 has been revised acc. to PR 1C Rev.5 as follows:

When the class is suspended or withdrawn, **TL** will notify the client and flag state in writing, make an entry to this effect in its register and make the information of the implicitly invalidated statutory certificates by the suspension / withdrawal publicly available.

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item C.5.3.3 has been revised acc. to PR 1C Rev.5 as follows:

When the class is reinstated, **TL** will confirm this in writing with the information of reinstated statutory certificates which were implicitly invalidated by the suspension / withdrawal to the client and to the flag state.

Revision Date: December 2016

Entry into Force Date: 01 January 2017

According to UR M74 New and UR M74 Rev.01, a new Additional Rule "Installation of Ballast Water Management Systems" is prepared and this rule is added to Table 2.33.

Table 2.33 Notations for ballast water management

Class Notation	Description	Application	Rule Requirement, Design	Rule Requirement, Survey
BWM-E(s)	For ships complying with the Guidelines on Ballast Water Management	Ships subject to sequential water exchange	International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, as amended and related guidelines (G1-G14) Additional Rule for Installation of Ballast Water Management Systems (as applicable)	Classification and Surveys Section 3
BWM-E(f)		Ships subject to water exchange by flow-through method		
BWM-E(d)		Ships subject to water exchange by dilution method		
BWM-T		Ships subject to ballast water treatment		

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item C.5.5.4 has been revised acc. To PR 1C Rev.5 as follows:

When the ship is re-assigned class, **TL** will confirm this in writing with the information of reinstated statutory certificates which were implicitly invalidated by the suspension / withdrawal to the client and to the flag state and make the information publicly available.

Revision Date: October 2016

Entry into Force Date: 1 January 2017

New Notation has been added to Table 2.12 as follows:

Table 2.12 Ship type notations for special service vessels

Class Notation	Description	Application	Rule Requirement, Design (1)	Rule Requirement, Survey
SEMI-SUBMERSIBLE PASSENGER SHIP	Passenger ship, non-military	Semi submersible	Part D Chapter 53 Submersibles, Part A Chapter 1 Section 30, Part B Chapter 4 and 5, Part C Chapter 9	Classification and Surveys Section 3 and Section 3 K.10

Revision Date: October 2016

Entry into Force Date: 1 January 2017

New Notation according to UR Z11 Rev 5 has been added to Table 2.14 as follows:

Table 2.14 Notations for survey scheme

Class Notation		Description	Application	Rule Requirement, Design	Rule Requirement, Survey
SELF-UNLOADERS	**ESP**	The ship type notation **SELF-UNLOADERS**, or equivalent, and the notation **ESP** shall be assigned to sea going self-propelled ships which are constructed generally with single deck, double bottom, hopper side tanks and topside tanks and with single or double side skin construction in cargo length area and intended to carry and self-unload dry cargoes in bulk.	Self Unloading Bulk Carriers	-	Classification and Surveys Section 3 A.4.14

Revision Date: October 2016

Entry into Force Date: 1 January 2017

New Notations have been added to Table 2.23 as follows:

Table 2.33 Notations for ballast water management

Class Notation	Description	Application	Rule Requirement, Design	Rule Requirement, Survey
BWM-E(s)	For ships complying with the Guidelines on Ballast Water Management	Ships subject to sequential water exchange	International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, as amended and related guidelines (G1-G14) Additional Rule for Installation of Ballast Water Management Systems (as applicable)	Classification and Surveys Section 3
BWM-E(f)		Ships subject to water exchange by flow-through method		
BWM-E(d)		Ships subject to water exchange by dilution method		
BWM-T		Ships subject to ballast water treatment		

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item D.3.1 has been revised as follows:

Ships classed by **TL** may be given optional class notation related to cargo, service area, design features, survey schemes, equipment or systems meeting corresponding rule requirements.

At the request of the owner, Notations used for naval ships may be assigned in agreement with TL instead of or in addition to the Notations defined in D, see TL – Part E, Chapter 101, Classification and Surveys, Section 2, D. The requirements for such assigned Notations are to be according to Part E, Naval Ship Technology Rules.

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Items D.3.14 is added after item D.3.13 as follows;

3.14 Ships Using Gases or Other Low-Flashpoint Fuels

Table 2.54 Notations for ships using gases or other low-flashpont fuels

Class Notation	Description	Application	Rule Requirement, Design	Rule Requirement, Survey
GF	For ships fitted with engine installations suitable for operation with natural gas as fuel or other low-flashpoint fuels.		**TL** Rules Part D Chapter 78	**TL** Rules Part D Chapter 78

02. Section 3 - Survey Schedules/ Annual Surveys

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item A.4 has been revised as follows:

*Note: Ships with the notations **SAILING YACHT** or **MOTOR YACHT** are not subject for an annual survey.*

Revision Date: December 2016

Entry into Force Date: 1 January 2017

A new sentence item A.4.9.1 has been added as follows:

The periodical surveys and tests of propeller shafts and tube shafts are defined in F.

Revision Date: December 2016

Entry into Force: Date 1 January 2017

Item A.13 has been added according UR Z10.1, UR Z10.2, UR Z10.3, UR Z10.4, UR Z10.5 as follows:

13. Survey Programme

Prior to each class renewal as well as intermediate survey of ships of 10 years and older, a survey programme in scope of ESP surveys, in compliance with UR Z10.1 (for oil tankers), UR Z10.2 (for bulk carriers), UR Z10.3 (for chemical tankers), UR Z10.4 (for double hull oil tankers), UR Z10.5 (for couble skin bulk carriers) has to be worked out in cooperation of the owner and **TL**.

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item B.11.2.1.2 has been revised according IMO MSC.342(91) and MSC.1/Circ.1381 as follows:

Firms engaged in testing of coating systems in accordance with IMO Resolution MSC.215 (82), as amended by IMO Resolution MSC.341(91) and MSC.1/Circ.1381 and IACS UI SC 223 and/or MSC.288 (87), as amended by Resolution MSC.342(91) and MSC.1/Circ.1381.

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item F.1.2.3.1.2 has been revised according UR Z21 Rev.4 as follows:

Method 3 every 5 years ~~with maximum of two consecutive Method 3 Surveys~~ (pre-requisites have to be fulfilled). The maximum interval between two surveys carried out according to Method 1 or Method 2 shall not exceed 15 years, except in the case when one extension for no more than three months is granted.

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item F.1.2.3.3.2 has been revised according UR Z21 Rev.4 as follows:

- **Extension up to a maximum of 1 year :** no more than two consecutive "one year extension" can be granted. In the event an additional extension is requested the requirements of the "2.5 year extension" are to be carried out and the shaft survey due date, prior to the previous extension(s), is extended for a maximum of 2.5 years.
- **Extension up to a maximum of 3 months :** no more than one "three months extension" can **b**e granted. In the event an additional extension is requested the requirements of the "one year extension" or "2.5 years extension" are to be carried out and the shaft survey due date, prior to the previous extension, is extended for a maximum of one year or 2.5 years.

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item F.1.2.4.2 has been revised according UR Z21 Rev.4 as follows:

- **Extension up to a maximum of 1 year :** no more than two consecutive extensions can be granted. In the event an additional extension is requested the requirements of the "2.5 year extension" are to be carried out and the shaft survey due date, prior to the previous extension(s), is extended for a maximum of 2.5 years.
- **Extension up to a maximum of 3 months:** no more than one "three months extension" can be granted. In the event an additional extension is requested the requirements of the "one year extension" or "2.5 years extension" are to be carried out and the shaft survey due date, prior to the previous extension, is extended for a maximum of one year or 2,5 years.

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Table 1.2.5 has been revised according UR Z21 Rev.4 as follows:

SURVEY INTERVALS (Closed Systems)			
Oil Lubricated			
	Flanged propeller coupling	Keyless propeller coupling	Keyed propeller coupling[b]
Every five years[a]	Method 1 or Method 2 or Method 3	Method 1 or Method 2 or Method 3[c]	Method 1 or Method 2
Extension 2,5 Years	Yes[d]	Yes[d]	Yes[d]
Extension 1 Year	Yes[e]	Yes[e]	Yes[e]
Extension 3 Months	Yes[f]	Yes[f]	Yes[f]
Closed Loop System Fresh Water Lubricated			
	Flanged propeller coupling	Keyless propeller coupling	Keyed propeller coupling[b]
Every five years[a]	Method 1[g] or Method 2 or Method 3	Method 1[g] or Method 2 or Method 3	Method 1[g] or Method 2
Extension 2,5 Years	Yes[d]	Yes[d]	Yes[d]
Extension 1 Year	Yes[e]	Yes[e]	Yes[e]
Extension 3 Months	Yes[f]	Yes[f]	Yes[f]

General notes:
For surveys (Method 1 or Method 2 or Method 3) completed within 3 months before the shaft survey due date, the next period will start from the shaft survey due date.
The extension survey should normally be carried out within 1 month of the shaft survey due date and the extension counts from the shaft survey due date. If the extension survey is carried out more than 1 month prior to the shaft survey due date, then the period of extension counts from the date of the extension survey was completed.

Notes :
a : unless an extension type (extension 2,5 years, extension 1 year, extension 3 months) is applied in between.
b : Method 3 not allowed.
c : The maximum interval between two surveys carried out according to Method 1 or Method 2 shall not exceed 15 years, except in the case when one extension for no more than three months is granted.
d : no more than one extension can be granted. No further extension of other type can be granted.
e : no more than two consecutive extensions can be granted. In the event an additional extension is requested, the requirements of the one year or "2.5 years extension" extension are to be carried out and the shaft survey due date prior to the previous extension is extended for a maximum of one year or 2.5 years.
f : no more than one three months extension can be granted. In the event an additional extension is requested, the requirements of the "one year extension" or "2.5 years extension" are to be carried out and the shaft survey due date, prior to the previousextension, is extended for a maximum of one year or 2.5 years.
g : the maximum interval between two surveys carried out according to Method 1 shall not be more than 15 years.

PART A – CHAPTER 1 – HULL

01. Section 3 – Design Principles

Revision Date: September 2016

Entry into Force Date: 1 January 2017

Item A.2.3.4.2, Table 3.10 and A.2.3.4.5 has been revised acc. to UR S6 Rev.8 as follows:

2.3.4.2

…

Materials in the various strength members above the lowest ballast water line (BWL) exposed to air are not to be of lower grades than those corresponding to Classes I, II and III, as given in Table 3.10, depending on the categories of structural members (SECONDARY, PRIMARY and SPECIAL). For non-exposed structures (except as indicated in Note (6) of Table 3.10) and structures below the lowest ballast water line, 2.3.2 and 2.3.3 apply.

Table 3.10 Material classes and grades for structures exposed to low temperatures

Structural member category	Material class	
	Within 0.4L amidships	Outside 0.4L amidships
SECONDARY : - Deck plating exposed to weather, in general - Side plating above BWL **(5)** - Transverse bulkheads above BWL **(5)(6)**	I	I
PRIMARY: - Strength deck plating **(1)** - Continuous longitudinal members above strength deck, excluding longitudinal hatch coamings - Longitudinal bulkhead above BWL **(5) (6)** - Top wing tank plating above BWL **(5) (6)**	II	I

SPECIAL : - Sheer strake at strength deck **(2)** - Stringer plate in strength deck **(2)** - Deck strake at longitudinal bulkhead **(3)** - Continuous longitudinal hatch coamings **(4)**	III	II

(1) *Plating at corners of large hatch openings to be specially considered. Class III or grade E/EH to be applied in positions where high local stresses may occur.*

(2) *Not to be less than grade E/EH within 0.4L amidships in ships with length exceeding 250 meters.*

(3) *In ships with breadth exceeding 70 meters at least three deck strakes to be of class III.*

(4) *Not to be less than grade D/DH..*

(5) *BWL = ballast water line.*

(6) Applicable to plating attached to hull envelope plating exposed to low air temperature. At least one strake is to be considered in the same way as exposed plating and the strake width is to be at least 600 mm.

2.3.4.5 The design temperature t_D is to be taken as the lowest mean daily average air temperature in the area of operation, (see Figure 3.2). The following definitions apply:

Mean : Statistical mean over an observation period~~(at least 20 years)~~

Average : Average during one day and night.

Lowest : Lowest during year.

For seasonally restricted service, the lowest expected value within the period of operation applies.

For the purpose of issuing a Polar Ship Certificate in accordance with the Polar Code, the design temperature t_D shall be no more than 13°C higher than the Polar Service Temperature (PST) of the ship.

In the Polar Regions, the statistical mean over observation period is to be determined for a period of at least 10 years.

02. Section 6 – Longitudinal Strength

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item I,1.1.4 has been added as below acc. to UR S33 Rev.1

1.1.4 Use of extremely thick steel plates

When using of extremely thick steel plates (50 mm and greater), **requirements in** TL Part A, Chapter 2**,** Section 3,J.2 **are** to be taken into consideration.

03. Section 8 – Supporting Structures

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item A.2 has been revised as below:

...

I_{pillar} = Moment of inertia of pillar [cm^4],

...

l_{pillar} = Length of pillar [m],

...

σ_{cr} = Minimum critical buckling stress [N/mm^2],

...

η_{buck} = Buckling utilisation factor

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item D.3 has been revised as below:

3.1.5 Pillars have open cross section are to be specially considered.

3.2 Scantlings

The sectional area of pillars (A_{PS}) is not to be less than:

$$A_{PS\,min} = 10\frac{F_L}{\eta_{buck}.\sigma_{cr}} \quad [cm^2]$$

F_L = Pillar load [kN],

= PA + F_i

P = Deck load [kN/m^2] according to Section 5

A = Load Area (m^2) for one pillar

F_i = Load from pillars located above the pillar considered [kN],

η_{buck} = 0.65, buckling utilisation factor

σ_{cr} = Minimum critical buckling stress [N/mm^2]

= σ_{EC} for $\sigma_{EC} \leq 0.5\mathrm{ReH}$

$= \left(1 - \frac{\mathrm{ReH}}{4\sigma_{EC}}\right)$ for $\sigma_{EC} > 0.5\mathrm{ReH}$

σ_{EC} = Elastic column buckling stress [N/mm^2]

$$= \pi^2 E f_{end} \frac{\mathrm{I}_{pillar}}{A_{PS} {l_{pillar}}^2} 10^{-4}$$

l_{pillar} = Unsupported length of the pillar [m]

I_{pillar} = Net moment of inertia about the weakest axis of the cross section of the pillar in [cm^4]

f_{end} = End constraint coefficient

= 4 where both ends are fixed

= 2 where one end is simply supported and the other end is fixed

= 1 where both ends are simply supported

A pillar end may be considered fixed when brackets of adequate size are fitted. Such brackets are to be supported by structural members with greater bending stiffness than the pillar.

04. Section 18 – Rudder And Manoeuvrıng Arrangement

Revision Date: August 2016

Entry into Force Date: 1 January 2017

Item C.5 has been added as below:

5. Rudder Boss

The rudder boss is to comply with the following criteria:

Depth of boss ≥ D_t

Wall thickness of boss in way of tiller ≥ 0,4 D_t

D_t = Rudder stock diameter (as defined in C.1.1)

05. Section 21 – Structural Fire Protection

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Items B.19.4.2 is revised as follows and according to amendment footnote (16) is added and existing footnotes are renumbered accordingly;

19.4.2 Performance of ventilation systems

19.4.2.1 The power ventilation system ~~required in item 19.4.1 is to~~ shall be separate from other ventilation systems. The power ventilation system shall be operated to give at least the number of air changes required in item 19.4.1 at all times when vehicles are in such spaces, except where an air quality control system in accordance with item 19.4.2.3 is provided. Ventilation ducts serving such cargo spaces capable of being effectively sealed shall be separated for each such space. The system shall be capable of being controlled from a position outside such spaces.

19.4.2.2 The ventilation system is to be such as to prevent air stratification and the formation of air pockets.

19.4.2.3 Where an air quality control system is provided based on the guidelines **(16)**, the ventilation system may be operated at a decreased number of air changes and/or a decreased amount of ventilation. This relaxation does not apply to spaces to which at least ten air changes per hour is required by Chapter 5 Electrical Installation Section 16 B.1.1 and spaces subject to item 21.1 and Chapter 4 Machinery Section 18 B.12.

.....

(16) *Refer to the Revised design guidelines and operational recommendations for ventilation systems in ro-ro cargo spaces (MSC/Circ.1515).*

Items C.14.2.2 is revised as follows;

14.2.2 Performance of ventilation systems

14.2.2.1 The ventilation fans shall ~~are~~ normally ~~to~~ be run continuously and give at least the number of air changes required in paragraph 14.2.1 whenever vehicles are on board, except where an air quality control system in accordance with paragraph 14.2.2.4 is provided. Where this is impracticable, they shall be operated for a limited period daily as weather permits and in any case for a reasonable period prior to discharge, after which period the ro-ro or vehicle space shall be proved gas-free. One or more portable combustible gas detecting instruments shall be carried for this purpose. The system shall be entirely separate from other ventilation systems.

14.2.2.2 Ventilation ducts serving ro-ro or vehicle spaces are to be capable of being effectively sealed for each such space. The system is to be capable of being controlled from a position outside such spaces.

14.2.2.3 The ventilation system is to be such as to prevent air stratification and the formation of air pockets.

14.2.2.4 Where an air quality control system is provided based on the guidelines **(16)**, the ventilation system may be operated at a decreased number of air changes and/or a decreased amount of ventilation. This relaxation does not apply to spaces to which at least ten air changes per hour is required by Chapter 5 Electrical Installation Section 16 B.2.1 and spaces subject to item 15.1 and Chapter 4 Machinery Section 18 B.12.

06. Section 23 – Bow, Stern and Side Doors

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item A.1.3 and its footnote have been added acc. to UI SC220 Rev.1 Corr.1 as below:

1.3 For vehicle ferries, ro-ro ships, and other ships of similar type, subject to the provisions of subparagraphs SOLAS Reg. II-1/17-1 items 1.2 and 1.3, all accesses that lead to spaces below the bulkhead deck shall have a lowest point which is not less than 2.5 m above the bulkhead deck. **(1)**

...

(1) *Also see IACS Unified Interpretation SC220*

...

07. Section 26 – Stability

Revision Date: November 2016

Entry into Force Date: 1 January 2017

Item A.2.19 and A2.20 have been revised acc. to UI MPC128 and UI SC273.

2.19 Lightweight-Lightship weight

Displacement of a ship without consumables, stores, cargo, passengers, crew and effects and any liquids on board except that machinery and piping fluids, such as lubricants and hydraulics, are at operating levels. (See note under the item A.2.20)

2.20 Lightship condition

Is a ship complete in all respects, but without consumables, stores, cargo, crew and effects, and without any liquids on board except that machinery and piping fluids, such as lubricants and hydraulics, are at operating levels.

Note:

The weight of mediums on board for the fixed fire-fighting systems (e.g. freshwater, CO_2, dry chemical powder, foam concentrate, etc) shall be included in the lightweight and lightship condition defined in item 2.19 and 2.20, respectively.

Revision Date: November 2016

Entry into Force Date: 1 January 2017

A note has been added acc. to UI SC280 as below:

2.25 Down-flooding angle

The minimum heel angle where an external opening without weathertight closing appliance is submerged.

Openings required to be fitted with weathertight closing devices under the ICLL but, for operational reasons, are required to be kept open should be considered as downflooding points in stability calculation.

Note: *In applying down-flooding angle, openings which cannot be or are incapable of being closed weathertight include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.*

08. Section 28 – Oil Tankers

Revision Date: November 2016

Entry into Force Date: 1 January 2017

Footnote of item D.1 has been updated acc. to UI MPC11 Rev.2 as below:

(4) *Refer to UI MPC11 Rev.2*

Revision Date: November 2016

Entry into Force Date: 1 January 2017

A note has been adden under item D.2.3.3 acc. to UI MPC129 as below:

2.3.3 The stability in the final stage of flooding is to be investigated and may be regarded as sufficient if the righting lever curve has at least a range of 20º beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 m. within the 20º range; the area under the curve within this range is not to be less than 0.0175 m.rad. Unprotected openings are not to be immersed within this range unless the space concerned is assumed to be flooded. Within this range, the immersion of any of the openings listed in 2.3.1 and other openings capable of being closed weathertight may be permitted.

Note: *Other openings capable of being closed weathertight do not include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.*

Revision Date: November 2016

Entry into Force Date: 1 January 2017

Item E1.1.3 and its footnote have been revised acc. to UI SC253 as below:

1.1.3 Be constructed of fire resistant and non-slip material;

Fibre Reinforced Plastic (FRP) gratings used in lieu of steel gratings for safe access to tanker bows shall possess:

- Low flame spread characteristics and shall not generate excessive quantities of smoke and toxic products as per the International Code for Application of Fire Test Procedures, 2010 (2010 FTP Code); and

- Adequate structural fire integrity as per recognized standards **(*)**,

…

(*) For example, the Standard Specification for Fibre Reinforced Polymer (FRP) Gratings Used in Marine Construction and Shipbuilding (ASTM F3059-14)

09. Section 29 – Tugs

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item B.1 has been revised as below:

B. Hull Strength

1. General

For determining the scantlings of strength members, the draught T is not to be taken less than 0.85 H.

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item F has been revised as below:

F. Intact Stability

The vessel is accepted as having adequate stability, if at least the following sets of criteria are met:

- The intact stability requirement of IMO Res. MSC.267 (85), Part A Chapter 2.2,
- Alternatively, if applicable, the intact stability requirement of IMO Res. MSC.267 (85), Part B Chapter 2.4
- Additionally, the vessel should be met one of the following sets of criteria:

Criteria Set A

- The residual area between a righting lever curve and a heeling lever curve developed from 70 % of the maximum bollard pull force acting in 90° to the ship-length direction should not be less than 0.09 mrad. The area has to be determined between the first interception of the two curves and the second interception or the angle of down flooding whichever is less.

- Alternatively, the area under a righting lever curve should not be less than 1,4 times the area under a heeling lever curve developed from 70 % of the maximum bollard pull force acting in 90° to ship-length direction. The areas are to be determined between 0° and the 2nd interception or the angle of down flooding whichever is less.

The heeling lever curve should be derived by using the following formula:

$$b_{h1} = \frac{0.7 \cdot T \cdot H \cdot \cos\theta}{9.81 \cdot \Delta}$$

b_{h1} = Heeling arm [m],

T = Maximum bollard pull [kN],

H = Vertical distance [m] between the towing hook and the centre of the propeller,

Δ = Loading condition displacement [t],

θ = Heeling angle [°].

Criteria Set B

The residual area between a righting curve and heeling curve developed from the maximum bollard pull force acting in 90° to ship-length direction is not to be less than 0.011 mrad. The area is to be determined between the first interception of the two curves and θ^D.

where θ^D is the heeling angle, to be taken as the lowest of:

- the angle of where the maximum GZ occurs
- the angle of downflooding
- 40°

The heeling lever curve should be derived by using the following formula:

$$b_{h2} = \frac{0.7 \cdot T \cdot H \cdot c \cdot \cos\theta}{9.81 \cdot \Delta}$$

b_{h2} = Heeling arm [m],

T = Maximum bollard pull [kN],

where this force is unknown, it can be assumed equal to:

T = 0.179 P for propellers not fitted with nozzles

= 0.228 P for propellers fitted with nozzles

P = Maximum continuous power of the propulsion engine [kW]

H = Vertical distance [m] between the towing hook, or equivalent fitting, and half draught corresponding to Δ [m]

c = coefficient to be taken equal to:

= 1.0 for ships with azimuth propulsion

= 0.65 for ships with non-azimuth propulsion

Δ = Loading condition displacement [t],

θ = Heeling angle [°].

PART A – CHAPTER 2 – MATERIAL

01. Section 3 – Rolled Steel Plates, Sections and Bars

Revision Date: November 2016

Entry into Force Date: 1 January 2017

Item J has been generally revised acc. to UR S33 Rev.1 and UR W31 Rev.1

02. Annex I – Measures for Extremenly Thick Steel Plates

Revision Date: November 2016

Entry into Force Date: 1 January 2017

In Annex 1 below paragraph has ben revised:

The thickness and the yield strength shown in the following table apply to the hatch coaming top plating and side plating, and are the controlling parameters for the application of countermeasures.

If the as built thickness of the hatch coaming top plating and side plating is below the values contained in the table, countermeasures are not necessary regardless of the thickness and yield strength of the upper deck.

...

PART B – CHAPTER 4 - MACHINERY

01. Section 2 - Internal Combustion Engines and Air Compressors

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Table 2.2 was revised according to UR M44 Corr.2 as follows:

...

20	Construction of accumulators ~~(common rail)~~ (for electronically controlled engine)	3
21	Construction of common accumulators ~~(common rail)~~ (for electronically controlled engine)	3

...

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item N is revised as follows;

N. Gas or Other Low-Flashpoint Fuels Fuelled Engines

1. Scope and application

1.1 For internal combustion engines using gas gas or other low-flashpoint fuels as fuel the following requirements are to be observed.

These requirements are applicable to gas or other low-flashpoint fuels fuelled engines meeting the following criteria:

- Engines using natural gas ~~engines using gases other than natural gas will be specially considered and additional respectively adapted requirements may apply~~ or other low-flashpoint fuels as fuel

……..

2. Further Rules and Guidelines

2.1 The ~~basic~~ gas or other low-flashpoint fuels fuelled engine requirements defined in **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships, Section 6~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels are generally to be fulfilled ~~independent of the source of gas (boil-off from cargo or gas fuel from storage tanks)~~.

2.2 Requirements for internal combustion engines as defined in these rules from A to N are to be followed for gas-fuelled engines as far as applicable.

2.3 **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels apply to gas fuel supplied from gas fuel storage tanks.

……..

~~Note: Use of gas as fuel for ships is currently not covered by international conventions (except boil-off from cargo covered by the IGC Code). Therefore, acceptance by the flag administration is necessary for each individual installation.~~

~~Resolution MSC.285(86) 'Interim Guidelines on Safety for Natural Gas-Fuelled Engine Installations in Ships' gives guidance on safety requirements for these installations. An International Code of Safety for Gas-fuelled Ships (IGF Code) is currently under development at IMO.~~

……..

3.1 Definitions addressing gas as fuel as given in **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels apply.

……..

5.1 In addition to the documents defined in B and **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships, Section 6~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels the documents as listed in Table 2.11 shall be submitted for approval respectively review. Following prior agreement with TL they shall be submitted in paper form in triplicate.

6. General requirements

Requirements as specified in the **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Part A-1 shall be observed.

6.1 Gas supply concept

6.1.1 Gas-fuelled engines shall either be designed according to Emergency Shut-down Concept (ESD) or Gas Safe Concept (definition and requirements see **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels.

……..

7. Systems

Requirements as specified in the **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships, Section 6~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels shall be observed.

……..

7.8.1.1 General requirements regarding gas supply and automatic activation of gas supply valves (double block and bleed valves, master gas valve) to the engine as defined in the **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels and **TL** Part C, Chapter 10 – Liquefied Gas Carriers shall be observed.

……..

7.8.2.1 A continuous gas detection system shall be provided (see **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships, Section 5~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Part A-1).

……..

8. Safety equipment and safety systems

Basic requirements as specified in the **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels shall be observed.

……..

8.3.3.1 As far as required in the **TL** ~~Additional~~ Rules ~~for the Use of Gas as Fuel for Ships~~ Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, explosion relief valves are to be provided for combustion air inlet manifolds and exhaust manifolds.

……..

02. Section 5 - Main Shafting

Revision Date: December 2016

Entry into Force Date: 01 January 2017

According to UR M68 Rev.2, Items B.1.6 and B.1.7 have been revised and item B.2 has been added as follows:

1. General

…

~~**1.6** However, the value of Rm used for calculation of the material factor C_w in accordance with formula (2) may not exceed.~~

~~- 415 N/mm^2 for tail shafts and tube shafts (propeller shafts) in salt water lubricated bearing fitted with non-continuous liners,~~

~~- 600 N/mm^2 for tail shafts and tube shafts (propeller shafts) in oil lubricated bearings or in saltwater lubricated bearings but fitted with continuous liner or equivalent,~~

~~- 760 N/mm^2 for shafts made of carbon or carbon manganese steel except tail shafts and tube shafts (propeller shafts),~~

~~- 800 N/mm^2 for shafts made of alloy steel except tail shafts and tube shafts (propeller shafts),~~

~~- Any further exceptions need the special consent of TL.~~

1.6 Where shafts may experience vibratory stresses close to the permissible stresses for transient operation, the materials are to have a specified minimum ultimate tensile strength (R_M) of 500 N/mm^2. Otherwise materials having a specified minimum ultimate tensile strength (R_M) of 400 N/mm^2 may be used.

For use in the formulae (2) of item C.2.1 and (1), (2), (3), (4) of Section 6, C.1.1, R_M is limited as follows:

- For carbon and carbon manganese steels, a minimum specified tensile strength not exceeding 600 N/mm^2 for use in the formulaes (1), (2), (3), (4) of Section 6, C.1.1 and not exceeding 760 N/mm^2 in the formulae (2) of item C.2.1.
- For alloy steels, a minimum specified tensile strength not exceeding 800 N/mm^2.
- For propeller shafts in general a minimum specified tensile strength not exceeding 600 N/mm^2 (for carbon, carbon manganese and alloy steels).

1.7 Where materials with greater specified or actual tensile strengths than the limitations given above are used, reduced shaft dimensions or higher permissible vibration stresses are not acceptable when derived from formulae (1) and (2) of item C.2 and (1), (2) of Section 6, C.1.1 unless **TL** verifies that the materials exhibit similar fatigue life as conventional steels (Refer to item B.2).

...

2. Special Approval Oof Alloy Steel Used For Intermediate Shaft Material

2.1 Application

These requirements are applied to the approval of alloy steel which has a minimum specified tensile strength greater than 800 N/mm^2, but less than 950 N/mm^2 intended for use as intermediate shaft material.

2.2 Torsional fatigue test

A torsional fatigue test is to be performed to verify that the material exhibits similar fatigue life as conventional steels. The torsional fatigue strength of said material is to be equal to or greater than the permissible torsional vibration stress τ_C given by the formulaes (1), (2), (3), (4) of Section 6, C.1.1. The test is to be carried out with notched and unnotched specimens respectively. For calculation of the stress concentration factor of the notched specimen, fatigue strength reduction factor β should be evaluated in consideration of the severest torsional stress concentration in the design criteria.

2.2.1 Test conditions

Test conditions are to be in accordance with Table 5.1. Mean surface roughness is to be <0.2µm Ra with the absence of localised machining marks verified by visual examination at low magnification (x20) as required by Section 8.4 of ISO 1352.

Test procedures are to be in accordance with Section 10 of ISO 1352.

2.2.2 Acceptance criteria

Measured high-cycle torsional fatigue strength τ_{C1} and low-cycle torsional fatigue strength τ_{C2} are to be equal to or greater than the values given by the following formulae:

$$\tau_{C1} \geq \tau_{C,\lambda=0} = \frac{R_M+160}{6}.C_K.C_D$$

$$\tau_{C2} \geq 1.7.\frac{1}{\sqrt{c_K}}\tau_{C1}$$

where

C_K = Factor for the particular shaft design features, see Section 6, Table 6.1

scf = Stress concentration factor, see Section 6, Table 6.1 (For unnotched specimen, 1.0.)

C_D = Size factor, see Section 6, A.4

R_M = Specified minimum tensile strength in N/mm^2 of the shaft material

Table 5.1 Test Condition

Loading Type	Torsion
Stress ratio	R=-1
Load waveform	Constant-amplitude sinusoidal
Evaluation	S-N curve
Number of cycles for test termination	1×10^7 cycles

2.3 Cleanliness requirements

The steels are to have a degree of cleanliness as shown in Table 5.2 when tested according to ISO 4967 method A. Representative samples are to be obtained from each heat of forged or rolled products.

The steels are generally to comply with the minimum requirements of Part A, Chapter 2, Section 5, Table 5.3 with particular attention given to minimising the concentrations of sulphur, phosphorus and oxygen in order to achieve the cleanliness requirements. The specific steel composition is required to be approved by TL.

2.4 Inspection

The ultrasonic testing required by Part A, Chapter 2, Section 5, items A and B are to be carried out prior to acceptance. The acceptance criteria are to be in accordance with IACS Recommendation No. 68 or a recognized national or international standard.

Table 5.2 Cleanliness requirements

Inclusion group	Series	Limiting chart diagram index *I*
Type A	Fine	1
	Thick	1

Type B	Fine	1.5
	Thick	1
Type C	Fine	1
	Thick	1
Type D	Fine	1
	Thick	1
Type DS	-	1

03. Section 6 - Torsional Vibrations

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item A.4, C.1.1 and C.1.6 have been revised according to UR M68 Rev.2 as follows:

A.4

...

R_m = Tensile strength of shaft material [N/mm^2], see Section 5, B.1.6

~~= 600 N/mm2 for propeller shafts in general and for all other shafts (especially intermediate shafts) made of forged, low alloy carbon or carbon manganese steel,~~

~~= 800 N/mm2 for all shafts except propeller shafts made of forged high alloy steels. Formula (3) should be applied in conjunction with such steels and special design features only~~

C.1.1

...

~~For direct coupled plants, in general, the materials with a tensile strength of Rm ≥ 500 N/mm^2 must be used, for geared plants or other plants with low torsional vibration level shafting materials with Rm ≥ 400 N/mm^2 may be accepted.~~

...

~~**1.6** For the calculation of the permissible limits of stresses due to torsional vibration, Rm is not to be taken as more than 800 N/mm^2 in the case of alloy steel intermediate and thrust shafts, or 600 N/mm^2 in the case of carbon and carbon-manganese steel intermediate, thrust and propeller shafts.~~

04. Section 7 – Gears, Couplings

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item A.1 has been revised according to UR M56 Rev.3 as follows:

1.1 These requirements apply to all types of couplings used for either main propulsion or essential auxiliary services and enclosed gears, internal and external involute spur and planetary i.e. helical cylindrical gears having parallel axis as well as bevel gears ~~and, of course, all types of couplings used for either main propulsion or~~

~~essential auxiliary services as specified in Section 1, H. The design requirements laid down here may also be applied to the gears and couplings of auxiliary machinery other than that mentioned in Section 1, H., if equivalent evidence of mechanical strength is not available.~~ which accumulate a large number of load cycles (several millions), whose gear set is intended to transmit a maximum continuous power equal to, or greater than:

- 220 kW for gears intended for main propulsion
- 110 kW for gears intended for essential auxiliary services

TL reserves right to apply these requirements to the enclosed gears, whose gear set is intended to transmit a maximum continuous power less than those specified above.

05. Section 8 – Propellers

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item E.2.5 is revised as below:

2.5 The propeller nut must be strongly secured to the propeller shaft. Screwing direction of the propeller nut is to be opposite to propeller shaft's ahead rotation direction.

06. Section 9 – Steering Gears and Thrusters

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item A.6 has been revised according to UI SC246 Rev.1 as follows:

...

1. the rudder is fully submerged (at zero speed waterline) and the vessel is in an acceptable trim condition

~~, or~~

2. the rudder ~~load and~~ torque at the trial loading condition have been reliably predicted (based on the system pressure measurement) and extrapolated to the ~~full load condition, to the satisfaction of TL.~~ maximum seagoing draught condition using the following method to predict the equivalent torque and actuator pressure at the deepest seagoing draught:

$$Q_F = Q_T \alpha$$

$$\alpha = 1.25\left(\frac{A_F}{A_T}\right)\left(\frac{V_F}{V_T}\right)^2$$

Where:

α is the extrapolation factor.

Q_F is the rudder stock moment for the deepest service draught and maximum service speed condition.

Q_T is the rudder stock moment for the trial condition.

A_F is the total immersed projected area of the movable part of the rudder in the deepest seagoing condition.

A_T is the total immersed projected area of the movable part of the rudder in the trial condition.

V_F is the contractual design speed of the vessel corresponding to the maximum continuous revolutions of the main engine at the deepest seagoing draught.

V_T is the measured speed of the vessel (considering current) in the trial condition.

Where the rudder actuator system pressure is shown to have a linear relationship to the rudder stock torque the above equation can be taken as:

$$P_F = P_T \alpha$$

Where:

P_F is the estimated steering actuator hydraulic pressure in the deepest seagoing draught condition.

P_T is the maximum measured actuator hydraulic pressure in the trial condition.

Where constant volume fixed displacement pumps are utilised then the regulations can be deemed satisfied if the estimated steering actuator hydraulic pressure at the deepest draught is less than the specified maximum working pressure of the rudder actuator. Where a variable delivery pump is utilised pump data should be supplied and interpreted to estimate the delivered flow rate corresponds to the deepest seagoing draught in order to calculate the steering time and allow it to be compared to the required time.

Where A_T is greater than $0.95A_F$ there is no need for extrapolation methods to be applied.

3. Alternatively the designer or builder may use computational fluid dynamic (CFD) studies or experimental investigations to predict the rudder stock moment at the full sea going draught condition and service speed. These calculations or experimental investigations are to be to the satisfaction of **TL**.

07. Section 10 – Design and Construction

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item C.2.4 has been deleted as follows:

~~Attention is to be given to any relevan requirements of the Naval Authority.~~

08. Section 16 - Pipe Lines, Valves, Fittings and Pumps

Revision Date: July 2016

Entry into Force Date: 01 January 2017

Item D.13 has been revised as follows:

13. Sea Chests

Sea chests are to comply with the following requirements:

- Located in positions where the possibility of blanking off the suction is minimized;

- Fitted with strainer plates through which the clear area is to be at least 2 ~~1.5~~ times the area of the inlet valves;

~~- Double or duplex type strainers are preferred. They should be arranged in parallel.~~

- Means are provided for clearing the strainer plates, such as by using compressed air or low pressure steam.

- Additional requirements for sea chests on ice strengthened vessels in TL Rules, Chapter 04 – Machinery Installation, Section 19, Item E.2 and Chapter 33 – Polar Class Ships, Section 3, Item I.2 are to be complied with, where applicable.

Revision Date: October 2016

Entry into Force Date: 01 January 2017

According to updated International Conventions Resolutions (e.g SOLAS, MARPOL, MSC) Item O.2.8 and footnote 14 have been revised as follows:

2.8 Where incinerating plants are used for fuel and oil residues, compliance is required with Section 15 and with the Resolution MEPC.244(66) ~~MEPC.76(40) as amended by MEPC.93(45)~~ "Standard Specification for Shipboard Incinerators".

(14) Reference is made to MEPC Circular 642 as amended by MEPC.1/Circ.676 and MEPC.1/Circ.760.

Revision Date: December 2016

Entry into Force Date: 01 January 2017

According to UR M74 New and UR M74 Rev.01, Items P.1.6 and P.4 are revised as follows:

1.6 Ballast water treatment plants

Ballast water treatment plants are to be approved by a flag administration acc. to IMO Resolution MEPC.174(58), MEPC.169 (57) respectively. The obligation to install a ballast water treatment plant depends on the ballast water capacity and keel lying date of the ship (See also ~~refer to~~ International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004 – Regulation B-3 and **TL** Additional Rule for Installation of Ballast Water Management Systems.)

…

4. Additional Rules for Tankers

See Section 20.B.4 and TL Additional Rule for Installation of Ballast Water Management Systems, Item 3.2.

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Items D.2.4 and D.10.2, Table 16.19 and Table 16.20 are revised according to UR P2.7.4 Rev.8, UR P2.11 Rev.4 ve UR P2.12 Rev.2 as follows:

2.4 Mechanical joints

2.4.1 Type approved mechanical joints may be used as shown in Tables 16.19, 16.20 and 16.21. ~~Construction of mechanical joints is to prevent the possibility of tightness failure affected by pressure pulsation, piping vibration, temperature variation and other similar adverse effects occurring during operation on board.~~

~~The mechanical joints are to be designed to withstand internal and external pressure as applicable and where used in suction lines are to be capable of operating under vacuum.~~

The number of mechanical joints in flammable fluid ~~oil~~ systems is to be kept to a minimum. In general, flanged joints conforming to recognised standards are to be used.

...

2.4.2 Where appropriate, mechanical joints are to be of fire resistant type as required by Table 16.20. ~~Mechanical joints in bilge and seawater systems within machinery spaces or spaces of high fire risk, e.g. cargo pump rooms and car decks, must be flame resistant, see Table 16.20.~~

2.4.3 Mechanical joints, which in the event of damage could cause fire or flooding, are not to be used in piping sections directly connected to the ship's side below the bulkhead deck of passenger ships and freeboard deck of cargo ships ~~sea openings~~ or tanks containing flammable liquids.

2.4.4

...

Slip-on joints inside tanks may be permitted only if the pipes and tanks contain a same medium. Usage of slip type slip-on joints as the main means of pipe connection is not permitted except for cases where compensation of axial pipe deformation is necessary.

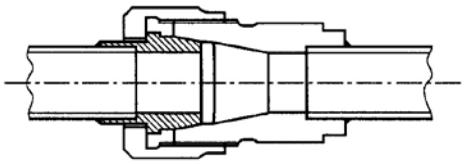
~~Unrestrained slip on joints may be used only where required for compensation of lateral pipe movement.~~

10.2

...

Flexible hose assemblies constructed of non-metallic materials intended for installation in piping systems for flammable media and sea water systems where failure may result in flooding are to be of a fire-resistant type except in cases where such hoses are installed on open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines. The installation of a shut-off valve immediately upstream of a sea water hose does not satisfy the requirements for fire-resistant type hose. Fire resistance is to be demonstrated by testing to ISO 15540 and ISO 15541.

Table 16.1 Examples of mechanical joints

Pipe Unions	
Welded and Brazed Types	
....	

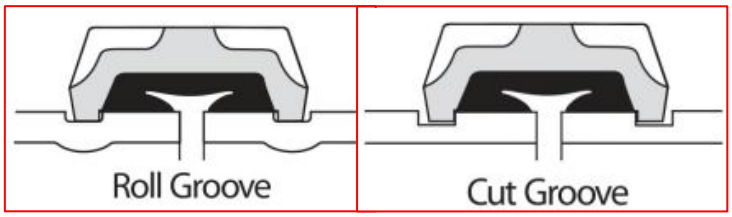
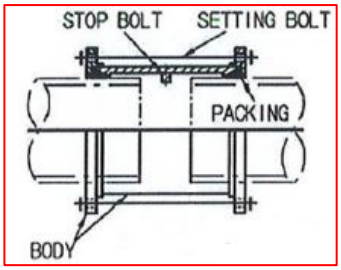
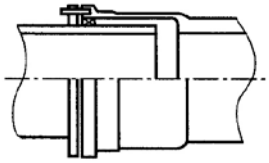
Machine Grooved Type	
□Slip Type	  

Table 16.20 Application of mechanical joints

Systems	**Kind of connections**		
	Pipe Unions	**Compression couplings (6)**	**Slip-on joints**
Flammable fluids (flash points <60°C)			
Cargo oil lines[4]	+	+	+
Crude oil washing lines[4]	+	+	+
Vent lines [3]	+	+	+
Water seal effluent lines	+	+	+
Scrubber effluent lines	+	+	+
Main lines[2&4]	+	+	+
Distributions lines[4]	+	+	+
Flammable fluids (Flash point > 60°C)			
Cargo oil lines[4]	+	+	+
Fuel oil lines[3,2]	+	+	+
Lubricating oil lines[2,3]	+	+	+
Hydraulic oil[2,3]	+	+	+
Thermal oil[2,3]	+	+	+
Sea Water			

Bilge lines[1]	+	+	+
Water filled fire extinguishing systems, e.g. sprinkler systems[3]	+	+	+
Non water filled fire extinguishing systems, e.g. foam, drencher systems[3]	+	+	+
Fire main (not permanently filled)[3]	+	+	+
Ballast system[1]	+	+	+
Cooling water system[1]	+	+	+
Tank cleaning services	+	+	+
Non-essential systems	+	+	+
Fresh water			
Cooling water system[1]	+	+	+
Condensate return[1]	+	+	+
Non-essential system	+	+	+
Sanitary/Drains/Scuppers			
Deck drains (internal)[6]	+	+	+[4]
Sanitary drains	+	+	+
Scuppers and discharge (overboard)	+	+	-
Sounding / Vent			
Water tanks/ Dry spaces	+	+	+
Oil tanks (F.p. > 60°C)[2,3]	+	+	+
Miscellaneous			
Starting /Control air[1]	+	+	-
Service air (non-essential)	+	+	+
Brine	+	+	+
CO_2 system[1]	+	+	-
Steam	+	+	+[5]

Footnotes – Fire resistance capability

If mechanical joints include any components which readily deteriorate in case of fire, they are to be of an approved fire resistant type under consideration of the following footnotes:

1. *Inside machinery spaces of category A-only approved of flame resistant types.*
2. *Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joint are located in easily visible and accessible positions.*
3. *Approved fire resistant types except in cases where such mechanical joints are installed on exposed open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines*
4. *Only in pump rooms and open decks- only approved fire resistant types.*

Footnotes – General

5. *Slip type slip-on joints as shown in Table 16.19. May be used for pipes on deck with a design pressure of 10 bar or less.*
6. *Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.*

\+ *Application is allowed* - *Application is not allowed*

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item T.1.1 is revised according to UI MPC88 Rev.1 as follows:

...

For application of resolution MEPC.227(64), the phrase "installed on or after 1 January 2016" shall be interpreted as follows:

(a) Installations on board ships the keels of which are laid or which are at a similar stage of construction on or after 1 January 2016.

(b) For other ships, installations with a contractual delivery date to the ship on or after 1 January 2016 or, in the absence of a contractual delivery date, the actual delivery of the equipment to the ship on or after 1 January 2016.

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item O.2.2 is revised as follows;

2.2 The oil residue (sludge) tanks:

2.2.1 shall be of adequate capacity, having regard to the type of machinery and length of voyage, to receive the oil residues (sludge) which cannot be dealt with otherwise in accordance with the requirements of MARPOL 73/78 Annex I

2.2.2 shall be provided with a designated self-priming pump ~~is to be provided for sludge discharge to reception facilities~~ that is capable of taking the oil residue (sludge) tanks for disposal of oil residue (sludge) by means as described in regulation 12.2 of MARPOL 73/78 Annex I. The capacity of the pump shall be such that the sludge tank can be emptied in a reasonable time.

2.2.3 shall have no discharge connection to the bilge system, oily bilge water holding tank(s), tank top or oily water separator, except that:

- the tank(s) may be fitted with drains, with manually operated self-closing valves and arrangements for subsequent visual monitoring of the settled water, that lead to an oily bilge water holding tank or bilge well, or an alternative arrangement provided such arrangement does not connect directly to the bilge discharge piping system; and

- the sludge tank discharge piping and bilge-water piping may be connected to a common piping leading to the standard discharge connection referred to in regulation 13 of MARPOL 73/78 Annex I; the connection of both systems to the possible common piping leading to the standard discharge connection referred to in regulation 13 of MARPOL 73/78 Annex I shall not allow for the transfer of sludge to the bilge system;

2.2.4 shall not arranged with any piping that has direct connection overboard, other than the standard discharge connection referred to in regulation 13 of MARPOL 73/78 Annex I

2.2.4 shall designed and constructed so as to facilitate their cleaning and discharge of residues to reception facilities

Items O.2.4, 2.5, 2.6 and 2.7 is deleted;

~~2.4 The oil residue (sludge) tanks shall have no discharge connection to the bilge system, the oily bilge water tank, the tank top or the oily water separator.~~

~~2.5 The oil residue (sludge) tank may be fitted with manual operated self closing drain valves with visual monitoring of the settled water (free air space) leading to the oily bilge water tank or bilge well.~~

~~2.6 There should be no interconnection between the sludge tank discharge piping and bilge water piping other than screw-down non-return valves arranged in lines connecting to common piping leading to the standard discharge connection required.~~

~~2.7 The common piping may serve only one purpose and that is to connect the discharge lines of the bilge and sludge pumps to the standard discharge connection referred to in Reg. 13, or any other approved means of disposal.~~

Note at end of item O.2.5 is revised as follows;

Note: ~~Ships delivered before 1 January 2014 should be exempted from the items 2.5 and 2.4 as stated by~~ TL Technical Circular S-P 35/13 covers interpretations of item 2.2.

09. Section 18 - Fire Protection and Fire Extinguishing Equipment

Revision Date: October 2016

Entry into Force Date: 01 January 2017

According to updated International Conventions Resolutions (e.g SOLAS, MARPOL, MSC) footnote 18,23,26,27 and Item L.1.4.3 Note have been revised as follows:

(18) Refer to IMO MSC/Circ. 848, "Revised Guidelines for the Approval of Equivalent Fixed Gas Fire Extinguishing Systems, as Referred to in SOLAS 74, for Machinery Spaces and Cargo Pump Rooms", as amended by MSC.I/Circ.1267. ~~Type approvals already conducted in accordance with guidelines contained in MSC/Circ.848 remain valid until 1 July 2012.~~

(23) See IMO MSC.1/Circ.1312 and MSC/Circ.670. ~~Approval certificates issued in accordance with MSC/Circ.582 and MSC/Circ.799 remain valid until 1 July 2012.~~

(26) Pressure water spraying systems deviating from these Rules may be used if approved as equivalent by TL. See also IMO-Resolution A.800(19), "Revised Guidelines for Approval of Sprinkler Systems Equivalent to that Referred to in Regulation II 2/12 of SOLAS 74" as amended by Res.MSC.265(84) and Res.MSC.284(86). ~~Existing type approval issued to confirm compliance with Res.A.800(19) remain valid until 1 July 2015.~~

(27) Definition of "dry pipe system", see IMO Res. A. 800 (19) as amended by Resolution MSC.265(84) and Resolution MSC.284(86), Annex, Item 2.3

L.1.4.3
Note:
The item 1.4.3 above is to be applied for ships constructed on or after 01 January 2014. See also FSS Code Chapter 8 and see IMO Res. A.800(19) as amended by Res.MSC.265(84) and Res.MSC.284(86) for definitions for "dry pipe system" and "preaction system".

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Following note is added to Items P.8.2 and Q.8.2 as per UI SC275 New and UI SC275 Rev.1:

Note: *"A suitable number of spare cylinders" to be carried on board to replace those used for fire drills shall be at least one 'set of cylinders' for each mandatory breathing apparatus, unless additional spare cylinders are required by the shipboard safety management system (SMS).*

'Set of cylinders' means the number of cylinders which are required to operate the breathing apparatus.
No additional cylinders are required for fire drills for breathing apparatus sets required by SOLAS Reg. II-2/19, IMSBC Code, the IBC Code or IGC Code.

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item D.3.2.2.3 note is revised according to UI SC270 Rev.1 as follows:

Note:

1. On board cargo ships designed to carry five or more tiers of containers on or above the weather deck;

.1 in cases where the mobile water monitors are supplied by separate pumps and piping system the total capacity of the main fire pumps need not exceed 180 m^3/h (also refer to item E.1.2.4) ~~in cases where the mobile water monitors are supplied by separate pumps and piping system.~~ and the diameter of the fire main and water service pipes (hereinafter referred to "the pipework diameter") need only be sufficient for the discharge of 140 m^3/h.

.2 in cases where the mobile water monitors are supplied by the main fire pumps; the total capacity of required main fire pumps and the pipework diameter shall be sufficient for simultaneously supplying both the required number of fire hoses and mobile water monitors. However, the total capacity shall not be less than the following .1 or .2, whichever is smaller:

.1 four thirds of the quantity required under regulation II-1/35-1 to be dealt with by each of the independent bilge pumps in a passenger ship of the same dimension when employed in bilge pumping; or

.2 180 m^3/h

.3 in cases where the mobile water monitors and the "water spray system" (fixed arrangement of spraying nozzles or flooding the cargo space with water) required by SOLAS regulation II-2/19.3.1.3 are supplied by the main fire pumps, the total capacity of the main fire pumps and the pipework diameter need only be sufficient to suuply whichever of the following is the greater:

.1 the mobile water monitors and the four nozzles required by SOLAS regulation II-2/19.3.1.2; or

.2 the four nozzles required by SOLAS regulation II-2/19.3.1.2 and the water spray system required by SOLAS regulation II-2/19.3.1.3.

The total capacity, however, is not to be less than 1.2.1 or 1.2.2, whichever is smaller.

2. On board cargo ...

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item D.4 is revised as follows;

4. Ships with natural gas-fuelled engine installations

Fire safety arrangements for ships provided with natural gas-fuelled engine installations shall be in accordance with the **TL** ~~Guidelines for the Use of Gas as Fuel for Ships~~ Rules Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels.

Table Q.18.11 is revised as follows;

Bulk Cargo Shipping Name (BCSN)	Class	Requirements															
		Fire-extinguishing system	Water supplies	Sources of ignition	Temperature measurement	Gas detection	Acidity of bilge water	Ventilation	Additional provisions on ventilation	Bilge pumping	Personnel protection	No smoking signs	Machinery space boundaries	Other boundaries	Gas sampling points	Weathertightness	Fuel tanks
AMMONIUM NITRATE BASED FERTILIZER UN 2071	9	Q.2.2	Q.3	Q.4 T3	Q.5.1.2			Q.6.1 Q.6.2			Q.8.1.2 Q.8.2.2	Q.9	Q.10.1			Q.13	Q.14.1 Q.14.2.3
AMORPHOUS SODIUM SILICATE LUMPS	MHB (CR)	Q.2.2									Q.8.1.2 Q.8.2.2						
BARIUM NITRATE UN 1446	5.1	Q.2.2	Q.3					Q.6.1 Q.6.2			Q.8.1.2 Q.8.2.2						
BORIC ACID	MHB (TX)	Q.2.2									Q.8.1.2 Q.8.2.2						
BROWN COAL BRIQUETTES	MHB	Q.2.2.1		Q.4 IIA T4, IP55	Q.5.1.2	Q.5.2.2 Q.5.2.4, .5	Q.5.3				Q.8.1.1 Q.8.2.1	Q.9		Q.11	Q.12	Q.13	Q.14.2.2
WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS	MHB (WF)	Q.2.1				Q.5.2.5 Q.5.2.10 Q.5.2.11		Q.6.1 Q.6.2			Q.8.2.1						
WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS	MHB (OH)	Q.2.2				Q.5.2.5 Q.5.2.10 Q.5.2.11		Q.6.1 Q.6.2			Q.8.2.1						

10. Section 20 - Tankers

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Following note is added to Item C.2.1 according to UI SC272 New and UI SC272 Rev.1

Note : *Double-hull spaces required to be fitted with suitable connections for the supply of inert gas as per item 2.1 are all ballast tanks and void spaces of double-hull and double-bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks, except cargo pump-rooms and ballast pump-rooms.*

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item B.5.4.5 is revised as follows;

5.4.5 When shutoff devices according to 5.4.4 are provided, ~~cargo tanks are to be protected against excessive positive and negative pressures caused by thermal variations. Pressure/vacuum relief devices as specified in item. 5.4.2 b are to be fitted~~ devices must continue to permit the flow caused by thermal variations in a cargo tank in accordance with 5.4.2.b. Also shutoff devices shall continue to permit the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging in accordance with 5.4.2.a.

Note: *See also C.4.1.2*

Item C.4.1.2 is revised as follows;

.....

- In the event of inadvertent closure or mechanical failure of the isolation valves required by SOLAS Reg. II-2/4.5.3.2.2, the secondary means shall be capable of preventing over-pressure or under-pressure.

.....

Item C.4.4 is revised as follows;

4.4 Openings for the relief of small quantities of vapours ~~(breather valves)~~ are ~~also to be located at a horizontal distance of at least 5 m. from air intakes or openings to enclosed spaces containing sources of ignition and from deck machinery liable to constitute a source of ignition~~ according to Item 4.3.

~~They must be located at least 2 m. above the weather deck.~~

PART B – CHAPTER 5 - ELECTRICAL INSTALLATION

01. Section 3 – Transient regulating conditions

Revision Date: December 2016

Entry into Force Date: 1 January 2017

Item B.2.4.2 has been revised acc. to UR E 13 Rev.2 as follows:

If no particular requirements are specified for the load changes, the above conditions are to be satisfied when the generator, running idle and excited to its rated voltage, is suddenly loaded to 60 % of its rated current with a power factor of < 0.4 (lagging), and, after steady- state operation has been achieved, the load is suddenly switched off again. Subject to TL's approval, such voltage regulation during transient conditions may be calculated values based on the previous type test records, and need not to be tested during factory testing of a generator.

02. Section 14 - Additional Rules for Passenger Vessels

Revision Date: October 2016

Entry into Force Date: 01 January 2017

Item B.4.4 is revised as below:

4.4 And, in general, all emergency batteries required in pursuance of Reg. II-1/42 or Reg. II-1/43. *(MSC/Circ.1120 as amended by MSC.1/Circular.1436)*

03. Section 15 – Cable Installation

Revision Date: May 2016

Entry into Force Date: 01 January 2017

Item 5 has been revised and Note has been added acc. to UI SC 274 as follows:

5.1 In tankers, electrical equipment, cables and wiring shall not be installed in hazardous locations unless it conforms with standards not inferior to those acceptable to the Organization.

However, for locations not covered by such standards, electrical equipment,cables and wiring which do not conform to the standards may be installed in hazardous locations based on a risk assessment to the satisfaction of the Administration, to ensure that an equivalent level of safety is assured.

Note:

Where the prescriptive requirements within SOLAS and related Codes (IBC, IGC) and the standards published by the International Electrotechnical Commission, such as but not limited to IEC 60092-502, are not aligned, the prescriptive requirements in SOLAS and Codes take precedence and are to be applied. The differences revealed between the above mentioned documents are listed in IACS UI SC279 Annex 1.

04. Section 17 – Transient Regulating Conditions

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item D.1.4 has been revised acc. to UI SC 279 Rev.3 and Rev.4 as follows:

1.4 When carrying flammable liquids having flashpoints less than 23^{o}C as Class 3, 6.1 or 8 in cargo spaces, the bilge pipes with flanges, valves, pumps, etc. constitute a source of release and the enclosing spaces (e.g. pipe tunnels, bilge pump rooms, etc.) are to be classified as an extended hazardous area (comparable with Zone 2)

unless these spaces are continuously mechanically ventilated with a capacity for at least six air changes per hour. Except where the space is protected with redundant mechanical ventilation capable of starting automatically, equipment not certified for Zone 2 are to be automatically disconnected following loss of ventilation while essential systems such as bilge and ballast systems are to be certified for Zone 2.

Where redundant mechanical ventilation is employed, equipment and essential systems not certified for Zone 2 shall be interlocked so as to prevent inadvertent operation if the ventilation is not operational. Audible and visible alarms shall be provided at a manned station if failure occurs.

04. Section 20 – Short Circuit Test

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item A.4.3.9 has been revised acc. to UR E13 Rev.2 as follows:

- In order to provide sufficient information to the party responsible for determining the discrimination settings in the distribution system where the generator is going to be used, the generator manufacturer shall provide documentation showing the transient behaviour of the short circuit current upon a sudden short-circuit occurring when excited, and running at nominal speed. The influence of the automatic voltage regulator shall be taken into account, and the setting parameters for the voltage regulator shall be noted together with the decrement curve. Such a decrement curve shall be available when the setting of the distribution system's short-circuit protection is calculated. The decrement curve need not be based on physical testing. The manufacturer's simulation model for the generator and the voltage regulator may be used where this has been validated through the previous type test on the same model.

PART C – CHAPTER 7 – HIGH SPEED CRAFTS

01. Section 1 – General Comments and Requirements

Revision Date: October 2016

Entry into Force Date: 1 January 2017

A note has been added under item 1.4.34 acc. to UI HSC10 New as below:

1.4.34 "Lightweight" is the displacement of the craft in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, passengers and crew and their effects.

Note:

The weight of mediums on board for the fixed fire-fighting systems (e.g. freshwater, CO2, dry chemical powder, foam concentrate, etc) shall be included in the lightweight and lightship condition.

02. Section 7 – Fire Safety

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 7.7.3.1 has been revised as below:

* *Refer to MSC/Circ.668 - Alternative arrangements for halon fire -extinguishing systems in machinery spaces and pump -rooms, and amendments thereto contained in MSC/Circ.728 - Revised test method for equivalent water-based fire extinguishing systems for machinery spaces of category A and cargo pump -rooms contained in MSC/Circ.668; and to MSC/Circ.848 - Revised Guidelines for the approval of equivalent fixed gas fire -extinguishing systems as amended by MSC.1/Circular.1267, as referred to in SOLAS 74, for machinery spaces and cargo pump -rooms.*

03. Section 8 – Life-Saving Appliances and Arrangements

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 8.9.7.1.2 has been revised as below:

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* *Refer to the Recommendation on Conditions for the Approval of Servicing Stations for Inflatable Liferafts, adopted by the Organization by resolution A.761(18), as amended by resolution MSC.55(66) as amended by Resolution MSC.388(94).*

04. Section 10 – Auxiliary Systems

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 10.1.4 has been revised as below:

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* *Refer to the Guidelines for the Application of Plastic Pipes on Ships, adopted by the Organization by resolution A.753(18) as amended by Resolution MSC.313(88).*

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item 10.1.6.3 has been revised as below:

10.1.6.3 Pipes, valves and fittings of non-metallic materials

Pipes, connecting pieces, valves and fittings made of plastic materials may be used at the discretion of the Society.

Note: Plastic pipes and the application are to comply with IMO Resolution A 753(18) as amended by Resolution MSC313(88).

…

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 10.2.4.8 has been revised as below:

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* *Refer to the Revised standards for the design, testing and locating of devices to prevent the passage of flame into cargo tanks in tankers (MSC/Circ.677 as amended by MSC/Circ.1009 as amended byMSC.1/Circ.1324).*

05. Section 11 – Remote Control, Alarm and Safety Systems

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 11.4.2 has been revised as below:

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* *Refer to the Code on Alerts and Indicators, 2009, adopted on 2 December 2009*

06. Section 13– Shipborne Navigational Systems and Equipment and Voyage Data Recorders

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 13.17.4 has been revised as below:

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* *Recommendation on performance standards for magnetic compasses (resolution A.382(X));*
Resolution MSC.116(73)- Performance Standards for Marine Transmitting Heading Devices (THDs)
Recommendation on performance standards for Gyro -compasses for high-speed craft (resolution A.821(19));
Recommendation on performance standards for devices to indicate speed and distance (resolution A.824(19), as amended by resolution MSC.96(72)as amended by Resouliton MSC.334(90));
Recommendation on performance standards for echo-sounding equipment (resolution A.224(VII) as amended by MSC.74(69), annex 2);
Recommendation on performance standards for navigational radar equipment for high-speed craft (resolution A.820(19));
Recommendation on performance standards for "Auto Tracking" (resolution MSC.64(67), annex 4, appendix 1);
Recommendation on performance standards for shipborne Decca navigator receivers (resolution A.816(19));
Recommendation on performance standards for shipborne Loran-C and Chayka receivers (resolution A.818(19));
Recommendation on performance standards for shipborne global positioning system receiver equipment (resolution A.819(19));
Adoption of The Revised Performance Standards for Shipborne Glonass Receiver Equipment Resolution MSC.113(73)
...

07. Section 14– Radiocommunications

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 14.14.1 has been revised as below:

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* *Refer to the following resolutions adopted by the Organization:*

.1 *Resolution A.525(13): Performance Standards for Narrow-Band Direct-Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships.*

.2 *Resolution A.694(17): General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids.*

.3 *Resolution A.808(19): Performance Standards for Ship Earth Stations Capable of Two -Way Communications, and resolution A.570(14), Type Approval of Ship Earth Stations.*

.4 *Resolutions A.803(19) and MSC.68(68), annex 1: Performance Standards for Shipborne VHF Radio installations Capable of Voice Communication and Digital Selective Calling.*

.5 *Resolutions A.804(19) and MSC.68(68), annex 2: Performance Standards for Shipborne MF Radio Installations Capable of Voice Communication and Digital Selective Calling.*

.6 *Resolutions A.806(19) and MSC.68(68), annex 3: Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling.*

.7 *Resolutions A.810(19) as amended by MSC.56(66) as amended by Resolution MSC.120.(74): Performance Standards for Float-Free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406 MHz (see also Assembly resolution A.696(17): Type Approval of Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating in the COSPAS-SARSAT System).*

.8 *Resolution A.802(19) as amended by Resolution MSC.247(83) : Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations.*

.9 *Resolution A.805(19): Performance Standards for Float-Free VHF Emergency Position-Indicating Radio Beacons.*

.10 *Resolutions A. 807(19) and MSC.68(68), annex 4: Performance Standards for Inmarsat Standard-C Ship Earth Stations Capable of Transmitting and Receiving Direct-Printing Communications, and resolution A.570(14), Type Approval of Ship Earth Stations.*

.11 *Resolution MSC.306(87)- Revised Performance Standards for Enhanced Group Call(EGC) Equipment*

.12 *Resolution A.812(19): Performance Standards for Float-Free Satellite Emergency Position-indicating Radio Beacons Operating Through the Ceostationary Inmarsat Satellite System on 1.6 GHz.*

…

08. Section 18– Operational Requirements

Revision Date: October 2016

Entry into Force Date: 1 January 2017

The footnote of item 18.1.3.19 has been revised as below:

---

* *Refer to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual as amended and Use of Radar Transponders for Search and Rescue Purposes, adopted by Resolution A.530(13).*

09. Annex I – Form Of High -Speed Craft Safety Certificate And Record Of Equipment

Revision Date: October 2016

Entry into Force Date: 01 January 2017

The footnote in page 1 has been revised as below:

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* *Alternatively, the particulars of the craft may be placed horizontally in boxes.*

** *In accordance with the IMO ship identification number scheme, adopted by the Organization by resolution A.1078(28).*

10. Annex II – Form Of Permit To Operate High-Speed Craft

Revision Date: October 2016

Entry into Force Date: 01 January 2017

The footnote in page 1 has been revised as below:

* *In accordance with the IMO ship identification number scheme, adopted by the Organization by resolution A.1078(28).*

** *Delete as appropriate.*

PART C – CHAPTER 8 – CHEMICAL TANKERS

01. Section 2 – Ship Survival Capability and Location of Cargo Tanks

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Note at the end of item 2.9.3.2 is revised as follows;

Note :

The 20° range may be measured from any angle commencing between the position of equilibrium and the angle of 25° (or 30° if no deck immersion occurs).Other openings capable of being closed weathertight do not include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.

02. Section 8 – Cargo Tank Venting and Gas-Freeing Arrangements

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item 8.3.6 is revised as follows;

8.3.6 Controlled tank venting systems fitted to tanks to be used for cargoes having a flashpoint not exceeding 60°C (closed-cup test) shall be provided with devices to prevent the passage of flame into the cargo tanks. The design, testing and locating of the devices shall comply with the requirements of the **TL**, which shall contain at least the standards adopted by the Organization (See MSC/Circ. 677 as amended by MSC/Circ.1009 and MSC.1/Circ.1324).

PART C – CHAPTER 9 - CONSTRUCTION AND CLASSIFICATION OF YACHTS

01. Section 1 – Classification and Surveys

Revision Date: October 2016

Entry into Force Date: 01 January 2017

"Fire Safety Plan" is removed from item A.2.3.2 as follows:

Machinery plans

...

- Ballast piping diagram
- Wiring diagram
- ~~Fire safety plan~~

PART C – CHAPTER 10 - LIQUEFIED GAS TANKERS

01. Section 2- Ship Survival Capability and Location of Cargo Tanks

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Note is added to end of item 2.7.2 as follows;

...

Note: Other openings capable of being closed weathertight do not include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.

02. Section 4 – Cargo Containment

Revision Date: October 2016

Entry into Force Date: 01 July 2016

Items 4.8.2, 4.8.3, 4.14.3.2 and 4.19.1.2 are deleted;

~~4.8.2 The supports shall be calculated for the most probable largest severe resulting acceleration taking into account rotational as well as translational effects. This acceleration in a given direction β may be determined as shown in Figure 4.3. The half axes of the "acceleration ellipse" are determined according to 4.28.2 for all tanks except type B-tanks where accelerations from direct hydrodynamic analysis shall be applied see (4.21 and 4.22).~~

~~4.8.3 For independent tanks and, where appropriate, for membrane tanks and semi-membrane tanks, provisions shall be made to key the tanks against the rotational effects referred to in 4.8.2 for all tanks except type B tanks where accelerations from direct hydrodynamics analysis shall apply (see 4.21 and 4.22).~~

~~4.14.3.2 When partial filling is contemplated, the risk of significant loads due to sloshing induced by any of the ship motions mentioned in item 4.14.1.2 is to be considered~~

~~4.19.1.2 The materials in the outer hull structure shall be in accordance with TL Rules Part A Chapter 1 Section 3, unless then calculated temperature of the material in the design condition (item 4.19.1) is below -5°C due to the effect of the low temperature cargo, in which case the material shall be in accordance with Table 6.5 assuming the ambient air and sea temperatures of 5°C and 0°C respectively.~~

Note of item 4.23.1.3 is revised as follows;

.....

Where:

ρ is maximum liquid cargo density in kg/m^3 at the design temperature

aß and zß are as defined in 4.28.1.2, see also Figure. 4.2.

aß1 and zß1 are the aß- and zß-values giving the maximum liquid pressure (Pgd)max ~~as defined in 4.28.1~~

aß2 and zß2 are the aß- and zß-values giving the minimum liquid pressure (Pgd)min~~, see Figure 4.2. For 4.28.1.2~~. see

.....

Item 4.23.3.3 is revised as follows;

*The circumferential stresses at supports shall be calculated by a procedure acceptable to **TL** for a sufficient number of load cases.*

***4.23.3.3.1** For horizontal cylindrical tanks made of C-Mn steel supported in saddles, the equivalent stress in the stiffening rings shall not exceed the following values if calculated using finite element method:*

$\sigma_e \leq \sigma_{all}$

where:

σ_{all}=*min(0.57 Rm;0.85 Re)*

$\sigma_e=\sqrt{(\sigma_n+\sigma_b)^2+3\tau^2}$

σ_e = *von Mises equivalent stress in N/mm^2*

σ_n = *normal stress ~~due to normal forces~~ in N/mm^2 in the circumferential direction of the stiffening ring*

σ_b = *bending stress in N/mm^2 in the circumferential direction of the stiffening ring*

τ= *shear stress in N/mm^2 in the stiffening ring*

Re, Rm see 4.18.1.3

*Equivalent stress values σ_e should be calculated over the full extent of the stiffening ring by a procedure acceptable to **TL**, for a sufficient number of load cases ~~as defined in item 4.8~~.*

Item 4.26.1.4 is deleted.

~~4.26.1.4 Structural analysis shall be performed in accordance with the requirements for membrane tanks or independent tanks, as appropriate, taking into account the internal pressure as indicated in 1.3.2.~~

03. Section 6 – Materials of Construction and Quality Control

Revision Date: December 2016

Entry into Force Date: 01 July 2016

Item 6.1.5 is revised as fallows;

6.1.5 Thermo-mechanical controlled processing (TMCP) is a procedure that involves strict control of both the steel temperature and the rolling reduction. Generally a high proportion of the rolling reduction is carried out close to the Ar3 temperature and may involve the rolling in the dual phase temperature region. Unlike CR, the properties conferred by TMCP cannot be reproduced by subsequent normalizing or other heat treatment. The use of accelerated cooling on completion of TMCP may also be accepted, subject to approval by the Administration. The same applies for the use of tempering after completion of TMCP.

Item 6.3.1 is revised as follows;

6.3.1 Tensile test

6.3.1.1 Tensile testing shall be carried out in accordance with UR W2.

6.3.1.2 Tensile strength, yield stress and elongation shall be approved by **TL**. For carbon-manganese steel and other materials with definitive yield points, consideration shall be given to the limitation of the yield to tensile ratio.

Item 6.3.2.1 is revised as follows;

6.3.2.1 Acceptance tests for metallic materials shall include Charpy V-notch toughness tests, unless otherwise specified by the Administration. The specified Charpy V-notch requirements are minimum average energy values for three full size (10 mm × 10 mm) specimens and minimum single energy values for individual specimens. Dimensions and tolerances of Charpy V-notch impact test specimens shall be in accordance with UR W2. The testing of sub-size specimens shall be in accordance with UR W2. Minimum average values for subsized specimens shall be.....

Item 6.3.2.2 is revised as follows;

6.3.2.2 For base metal, the largest size Charpy V-notch specimens possible for the material thickness shall be machined with the specimens located as near as practicable to a point midway between the surface and the centre of the thickness and the length of the notch perpendicular to the surface as shown in figure 6.1. In the case where the material thickness is 40mm or below, the Charpy V-notch impact test specimens shall be cut with their edge within 2mm from the “as rolled” surface with their longitudinal axes either parallel or transverse to the final direction of rolling of the material.

Item 6.3.3.1 is revised as follows;

6.3.3.1 The bend test may be omitted as a material acceptance test, but is required for weld tests. Where a bend test is performed, ~~this shall be done in accordance with recognized standards~~ the test specimens and procedures shall be in accordance with UR W2.

Following sentence is added to end of item 6.4.1.1.5;

The re-testing of Charpy V-notch impact test specimens shall be in accordance with UR W2.

Following sentence is added to end of item 6.4.1.1.5;

The requirements for castings and forgings intended for cargo and process piping for design temperature above 0°C are at the discretion of TL.

Table 6.3 Note 4 is revised as follows;

4) For 9% Ni steels, austenitic steels and aluminium alloys, thickness greater than 25 mm may be used.

Table 6.5 is revised as follows;

PLATES AND SECTIONS FOR HULL STRUCTURES REQUIRED BY 4.19.1.2 AND 4.19.1.3								
Minimum design temperature of hull structure (°C)	**Maximum thickness (mm) for steel grades**							
	A	**B**	**D**	**E**	**AH**	**DH**	**EH**	**FH**
0 and above[See note 1] -5 and above [See note 2]	Recognized standards							
-5 and below 0	15	25	30	50	25	45	50	50
-10 and below -5	X	20	25	50	20	40	50	50
-20 and below -10	X	X	20	50	X	30	50	50
-30 and below -20	X	X	X	40	X	20	40	50
Below -30	In accordance with Table 6.2 except that the thickness limitation given in Table 6.2 and in note 2 of that table does not apply.							

Notes:

"X" means steel grade not to be used.

1) *For the purpose of 4.19.1.3.*

2) *For the purpose of 4.19.1.2.*

Sub items 6.4.1.2, 6.4.1.3 and 6.4.1.4 are added after Table 6.5 as follows;

6.4.1.2 Materials with alternative chemical composition or mechanical properties may be accepted by special agreement with TL.

6.4.1.3 Where post-weld heat treatment is specified or required the properties of the base materials shall be determined in the heat treated condition in accordance with the applicable table and the weld properties shall be determined in the heat treated condition in accordance with 6.5. In cases where a post-weld heat treatment is applied, the test requirements may be modified at the discretion of the TL.

6.4.1.4 Where reference is made to hull structural steels, the requirements of UR W11 for appropriate grades apply.

Item 6.5.3.3 is revised as follows;

6.5.3.3 For butt welds in plates, the test assemblies shall be so prepared that the rolling direction is parallel to the direction of welding. The range of thickness qualified by each welding procedure test shall be ~~in accordance with recognized standards~~ approved by **TL**. Radiographic or ultrasonic testing may be performed at the option of the fabricator or **TL.**

Item 6.5.3.4.5 is revised as follows;

.5 macrosection, microsection and hardness survey may also be required at the discretion of **TL.**

Item 6.5.5.1 is revised as follows;

6.5.5.1 For all cargo tanks and process pressure vessels, except integral and membrane tanks, production weld tests shall generally be performed for approximately each 50 m of butt-weld joints and shall be representative of each welding position. For secondary barriers, the same type production tests as required for primary tanks shall be performed, except that the number of tests may be reduced subject to agreement with the Administration. Test requirements shall be in accordance with 6.5.3.5. Tests, other than those specified in 6.5.5.2 to 6.5.5.5 may be required for cargo tanks or secondary barriers.

Item 6.5.6.9 is added after item 6.5.6.8 as follows;

*6.5.6.9 Special weld inspection procedures and acceptable standards are to shall be submitted by the designers of integral and membrane tanks for approval by **TL.***

PART C – CHAPTER 33 – POLAR CLASS SHIPS

01. General

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Chapter 33 is generally revised according to Polar Code and revised UR Is.

PART D – CHAPTER 53 – SUBMERSIBLES

01. Section 2 – Principles for The Construction of Manned Submersibles

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item B.3.6 has ben revised as below:

3.6 MSC/Circ. 981 as amended by MSC/Circ.1125

Guidelines for the Design, Construction and Operation of Passenger Submersible Craft according to IMO MSC/Circ. 981 of 29 January 2001 as amended by MSC/Circ.1125.

02. Section 16 – Additional Requirements to Submersibles for Tourist Services

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Item A.1 has ben revised as below:

A. General

1. The following rules are defining which minimum requirements are to be met by submersibles intended for tourist services according to MSC/ Circ.981 of 29 January 2001 as amended by MSC/Circ.1125.

PART D – CHAPTER 76 – ENVIRONMENTAL SERVICE SYSTEM

01. Section 1 – General Information

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item B.1 is revised as follows;

.....

MEPC.~~179(59)~~269(68), "2015 Guidelines for the Development of the Inventory of Hazardous Materials",

MEPC.~~212(63)~~245(66) as amended by MEPC 263(68) and MEPC 281(70), ~~2012~~ 2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for New Ships,

MEPC.~~214(63)~~254(67) as amended by MEPC 261(68), 2014 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI)...

.....

02. Section 2 - Environmental Passport

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item B.5.2.2 has been revised according to UR M74 New and UR M74 Rev.01 as follows:

5.2.2 A ship-specific ballast water management plan shall be drawn up in accordance with IMO Resolution A.868(20) and IMO MEPC Res. 127(53) – Guidelines for ballast water management and the development of ballast water management plans (G4). See also TL Additional Rule "Installation of Ballast Water Management Systems".

Revision Date: December 2016

Entry into Force Date: 01 January 2017

Item B.2.1.2 and 2.1.4 are revised as follows;

2.1.2 IMO Resolution MEPC.107(49) as amended by MEPC 285(70), Guidelines and Specifications for Pollution Prevention Equipment for Machinery Space Bilges of Ships, applies to all ships.

2.1.3 The following requirements are applicable to oily water removed from the machinery space bilges of any ship.

2.1.4 Within the scope of EP Notation, installation of IBTS (Integrated Bilge Water Treatment System) is made compulsory and statement of fact shall be issued for compliance with Guidance Notes set in MEPC.1/Circular.642 as amended by MEPC.1/Circ.676 and MEPC.1/Circ.760 Appendix 1.

Item B.4.6 is revised as follows;

4.6 The Sewage Treatment Plant has to be examined and satisfactorily tested in accordance with the International Maritime Organization Resolution MEPC.~~159(55)~~227(64) as amended by MEPC 284(70) to meet the operational requirements referred to in Regulation 9.1.1 and 9.2.1 of Annex IV of the International Convention for the Prevention of Pollution from Ships, 1973/78 as modified by Resolution MEPC.~~115(51)~~200(62).

Item B.5.2.4 is revised as follows;

5.2.4 Treatment system

A ballast water treatment plant shall be installed. Ballast water treatment plants are to be approved by a flag administration acc. to IMO Resolution MEPC 279(70) or MEPC. 174 (58) (not avaliable after 28.10.2018), MEPC.169 (57) respectively and **TL** Rules for Machinery Installations Chapter 4, Section 16, P .1.6.

Item B.7.2 is revised as follows;

7.2 Garbage handling

7.2.1 A garbage management plan shall be established in accordance with Regulation ~~9~~ 10 of Annex V of **MARPOL 73/78** and kept on board of all ships. This plan shall provide written procedures for the collecting, storing, processing and disposing of garbage, including the use of the equipment on board. A person in charge of carrying out the plan has to be designated.

7.2.2 A garbage record book, comprising all relevant information of the discharge operations or completed incineration, shall be kept on board. All operations and each completed page shall be signed according to Regulation ~~9(3)~~ 10. 3 of Annex V of **MARPOL 73/78** and the Appendix to Annex V.

7.2.3 Equipment shall be provided on board for sorting, minimizing and storing the garbage prior to discharge or incineration. The respective procedures for sorting, minimizing and storing shall be incorporated into the garbage management plan.

7.2.4 Every ship of 12 m or more in length overall shall display placards which notify the crew and passengers of the garbage disposal requirements of regulations 3 and ~~5~~ 4 of Annex V of **MARPOL 73/78**.

……

Item C.2.1 is revised as follows;

2.1 The requirements refer to Revised **MARPOL 73/78** Annex VI, Regulation 14 as amended by Resolution MEPC.176(58) and apply to all ships.

Item C.2.4 is revised as follows;

2.4 Exhaust gas cleaning systems may be used to reduce the emissions of SOx provided that the requirements of Resolution MEPC.~~170(57)~~184(59) 2009 Guidelines of Exhaust Gas Cleaning Systems are met.

Item C.4.2 is revised as follows;

4.2 Type approval in accordance with IMO Resolution MEPC ~~76(40)~~ 244(66) is necessary for all incinerators installed on board.

Item C.7.2 is revised as follows;

7.2 Scope of application

The requirements apply to all new ships as described in MEPC~~.212(63)~~245(66) as amended by MEPC 263(68) and MEPC 281(70), ~~2012~~ 2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for New Ships.

Item D.2 is revised as follows;

2. Scope of Application

An Inventory of Hazardous Materials for all merchant ships is to be prepared based on "MEPC.~~176(59)~~269 (68) – Guidelines for the Development of the Inventory of Hazardous Materials"

PART D – CHAPTER 78 – RULES FOR CLASSIFICATION OF SHIPS USING GASES OR OTHER LOW-FLASHPOINT FUELS

01. Section 1 – General Information

Revision Date: December 2016

Entry into Force Date: 01 January 2017

This chapter newly prepared according to IGF Code and TL Additional Rules for Use of Gas as Fuel for Ships. Also TL Additional Rules for Use of Gas as Fuel for Ships is cancelled.

PART E – CHAPTER 102 – NAVAL SHIP TECHNOLOGY, HULL STRUCTURES AND SHIP EQUIPMENTS

01. Section 7 – Bottom and Shell Structures

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item B.1.2 has been revised as below:

1.2 Flat keel

1.2.1 A keel plate shall extend over the complete length of the ship. The width of flat plate keel is not to be less than:

$b=800+5L$ [mm]

1.2.2 The thickness of the flat plate keel is not to be less than:

$t_{FK} = t_B + 1,5$ [mm]

t_B = thickness of bottom plating [mm] according to 2.

PART E – CHAPTER 105 – NAVAL SHIP TECHNOLOGY, ELECTRICAL INSTALLATIONS

01. Section 1 - General Requirements and Instructions

Revision Date: October 2016

Entry into Force Date: 01 January 2017

Item H.3 is revised as below:

3. Reference is made to IMO Resolution A.1021(26) "Code on Alerts and Indicators", 2009.

02. Section 3 – Power Supply Installations

Revision Date: November 2016

Entry into Force Date: 01 January 2017

Item D.2 is revised as follows:

2.1 Control and monitoring devices for primary essential equipment which needs UPS back-up for the continuity of safe function in case of failure of the main supply with a duration of at least 30 minutes.

2.2 Services with a duration of at least 3 hours:

~~**2.2**~~ **2.2.1** General emergency alarm as per Section 9, C.1.

~~**2.3**~~ **2.2.2** Public address system as per Section 9, C.2.

~~**2.4**~~ **2.2.3** Fire detection and fire alarm system as per Section 9, C.3.

~~**2.5**~~ **2.2.4** Voyage data recorder (VDR) as per Section 9, C.5.

~~**2.6**~~ **2.2.5** VHF radio installation

~~**2.7**~~ **2.2.6** GPS receiver and gyro-compass

2.3 For any other equipment and systems requiring uninterrupted transition of power the duration of power supply shall be at least 15 minutes.

2.4 Other, higher values for the transition duration may be defined in the building specification.

2.5 Permissible time for changeover of weapon systems and tactical command systems are to be specified by the maker or in the building specification.

PART E – CHAPTER 107 – NAVAL SHIP TECHNOLOGY, SHIP OPERATION INSTALLATIONS AND AUXILIARY SYSTEMS

01. Section 8 - Piping Systems, Valves and Pumps

Revision Date: October 2016

Entry into Force Date: 01 January 2017

Item B.2.5.1, note (1) is revised as below:

(1) See **IMO** Resolution A.753(18) "Guidelines for the Application of Plastic Pipes on Ships" as amended by MSC.313(18).

02. Section 9 – Fire Protection and Fire Extinguishing Equipment

Revision Date: July 2016

Entry into Force Date: 01 January 2017

Item F.5 has been revised as follows:

…

If sprinkler systems are to be used for other duties such systems have to be designed and installed according to the TL Rules, ~~Chapter 104 - Machinery Installations, Section 12~~ Part B, Chapter 04 - Machinery Rules, Section 18, L.

ADDITIONAL RULES – SHIPBUILDING AND REPAIR QUALITY STANDARD

01. Section 1 – Shipbuilding and Remadial Quality Standard for New Construction

Revision Date: October 2016

Entry into Force Date: 1 January 2017

Table 1.14, Table 1.15, Table 1.20, Table 1.22 have been revised acc. to REC 47 Rev.7

ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR LIFE SAVING APPLIANCES

01. General

Revision Date: November 2016

Entry into Force Date: 01 January 2017

TL Additional Rule Unified Interpretations for Life Saving Appliances is revised as per UI SC213 Rev.3 and UI SC213 Rev.4 as follows:

SC
213

(Rev.4 Nov 2016)
Interpretation
...
2. The area where these remotely located survival craft are stowed shall be provided with:
- a minimum number of ~~2~~ two lifejackets and ~~2~~ two immersion suits;
...
- self-contained battery-powered lamps (i.e. luminaires) may be accepted as means of illumination for complying with reg. III/16.7. Such lamps shall be capable of being recharged from the ship's main and emergency source of electrical power, and shall be stowed under charge. When disconnected from the ship's power, the lamp shall give a minimum duration of 3 hours of undiminished performance. The lamps shall comply with the requirements of the LSA Code section 1.2.3. The lamps (i.e. luminaires) should meet the requirements of IP 55. The batteries for the subject lamps should comply with UR E18 requirements irrespective of whether the expiry date is marked by the Manufacturer or not.
...
~~6. The length of the embarkation ladder used to board this liferaft (remotely located survival craft) is calculated by applying an adverse list of 20 degrees, to the loading condition taken from the approved loading manual which gives the lightest draft at the embarkation station.~~

Notes
...
4. Rev.3 of this UI is to be uniformly implemented by IACS Societies for ships contracted for construction on or after 1 January 2017.
5. Rev.4 of this UI is to be uniformly implemented by IACS Societies for ships contracted for construction on or after 1 January 2017.

Revision Date: October 2016

Entry into Force Date: 01 January 2017

TL Additional Rule Unified Interpretations for Life Saving Appliances is revised as per UI SC267 Rev.2 as follows:

SC
267
(Rev.2 Sept 2016)
...
Where stainless steel having a Pitting Resistance Equivalent Number (PREN = 1 • %Cr + 3.3 (%Mo + 0.5 • %W) + 16 • %N) of ~~25~~ 22 or more is chosen, such stainless steel do not need to be subjected to ISO 9227:2012 or other equivalent recognized national standard.

Where stainless steel having a PREN < ~~25~~ 22, or another corrosion resistant material/alloy is chosen, the material is to be qualified by corrosion test according to ISO 9227:2012 or other equivalent recognized national standard. When the test is carried out in accordance with ISO 9227:2012, neutral salt spray (NSS) is to be used, with 1000 hours test duration for components outside the lifeboat, and 160 hours for those inside the lifeboat. The salt spray tests may be conducted by using round specimens (diameter is 14mm) according to IACS UR W2.4.2.
...
3. Revision 2 of this Unified Interpretation is to be uniformly implemented by IACS Societies for approvals issued in accordance with SOLAS III/34 and the LSA Code no later than 1 January 2017.

ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR THE IMPLEMENTATION OF MARPOL ANNEX VI AND NO_x TECHNICAL CODE

01. General

Revision Date: February 2016

Entry into Force Date: 01 January 2017

UI MPC127 New has been incorporated into TL Additional Rule for Unified Interpretations for the Implementation of MARPOL Annex VI and NO_x Technical Code.

ADDITIONAL RULE – TURK LOYDU SURVEY AND CERTIFICATION RULES ON ENERGY EFFICIENCY OF SHIPS (MARPOL 73/78 ANNEX VI, CHAPTER 4)

01. General

Revision Date: November 2016

Entry into Force Date: 01 January 2016

References of 2014 Guidelines on the method of calculation of the attained energy efficiency design index (EEDI) for new ship and MEPC.1/Circular.795 – Unified Interpretations to MARPOL Annex VI are revised as RESOLUTION MEPC.245(66) as amended by MEPC 263(68) and MEPC 281(70) and MEPC.1/Circ 795/Rev.2 and item 5, Sub Steps for final verification is revised as follows;

……..

Sub Steps for final verification

1. Review of the sea trial procedure (TL shall examine the programme of the sea trial to check that the test procedure and in particular that the number of speed measurement points comply with the requirements of the IMO Verification Guidelines (2014 Guidelines on survey and certification of EEDI, Res. MEPC 254(67) adopted on 17 October 2014, referred to as the "IMO Verification Guidelines" in the present document).

……..

ADDITIONAL RULE – UNIFIED INTERPRETATIONS FOR THE IMPLEMENTATION OF ILLC 1966 AND 1966-1988

01. UI LL

Revision Date: November 2016

Entry into Force Date: 01 January 2016

UI LL80 is added after UI LL79 as follows;

LL

80
(June 2016)
Unprotected openings

ICLL Regulation 27(13)(e)
Subdivision and Damage stability

When any part of the deck outside the compartment assumed flooded in a particular case of damage is immersed, or in any case where the margin of stability in the flooded condition may be considered doubtful, the residual stability is to be investigated. It may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium with a maximum righting lever of at least 0.1 m within this range. The area under the righting lever curve within this range shall be not less than 0.0175 m.rad. The Administration shall give consideration to the potential hazard presented by protected or unprotected openings which may become temporarily immersed within the range of residual stability.

Interpretation

Unprotected openings include ventilators (complying with ILLC 19(4)) that for operational reasons have to remain open to supply air to the engine room or emergency generator room (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship.

Note:

1. This Unified Interpretation is to be uniformly implemented on ships contracted for construction on or after 1 January 2017.

2. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No. 29.

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