Testing of Watertight Compartments

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1. Background (Review)

- Requirement of hydrostatic testing for F.P.s, D.B.s and Inn. Skins dates back to <u>1929</u> or earlier (Riveting age).
- Current SOLAS regulation II-1/11, specifying testing of W.T. spaces & tanks, entered into force in Jan. 2009.
- Paragraph 2 seems to be at variance with paragraph 1.





2. Variance overlooked by ?

 Paragraph 1 states that hydrostatic testing is not practicable and mandatory for "Watertight compartments not intended to hold liquids", including "ballast" holds. Paragraph 2 explicitly requires hydrostatic testing of "F.P. (including void spaces), D.B. (including duct keels) and Inn. Skins". - Main point at issue;

Hydrostatic testing of all W.T. compartments ?

3. Vagueness & confusion

- In addition, paragraph 3 requires hydrostatic testing of "Tanks intended to hold liquids" in order to confirm tightness and structural strength.
 - Main point at issue;

Hydrostatic testing for <u>tightness</u> confirmation?



4. Impracticality caused by formalism

- The latest <u>established</u> Engineering Practice of the Shipbuilding Industry has been <u>conflicting</u> with current SOLAS requirements !
 - Prefabricated hull construction (Blocks)
 - Advanced outfitting
 - Exemption from hydrostatic (structural strength) testing of other tanks of same construction and those of subsequent sister ships



5. Actual problems experienced

- Hydrostatic testing mostly brings serious damage to equipments, electric cables and/or coatings in "Watertight compartments not intended to hold liquids" although they are filled with fresh water.
- It is terrible to <u>save</u> enormous amount of fresh water for tests.

6. Remedial action taken by IACS

- IACS, cosponsored by Cook Islands and Marshall Islands, proposed <u>draft amendments</u> to SOLAS and <u>draft Guidelines</u> for "Procedures of Testing Tanks and Tight Boundaries" at MSC 86 (MSC 86/23/13, June 2009).
- MSC 86 decided to refer the issue to DE.
- At DE 56 (February 2012), discussion on this issue will be commenced (agenda item 16).
 2 sessions are arranged to settle this issue.

7. SAJ position

- Amendments to SOLAS or <u>Man-made</u> lasting disaster !
- Proposals made by IACS et al., i.e., new additional paragraph 5 and draft Guidelines, seem to be reasonable and supportive, in principle.
- Changes made by IACS for DE 56, however, require quick review.

The 5th ASEF 2011 Busan

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86th	UTIME SAFETY CO session ala item 23	MMITTEE	0	MSC 86/23/13 25 February 2009 riginal: ENGLISH		
WORK PROGRAMME						
Testing of watertight compartments						
Submitted by the Cook Islands, Marshall Islands and International Association of Classification Societies (IACS)						
		s	JMMARY			
	of	is document pro the DE Sub-Cor red 52	poses a new item be added to the unittee on Testing of watertight co	work programme ompartments		
		nd 5.2 .1 and 5.2.1				
	ned output : -					
		agraph 19 solution MSC 1	14(20)			
Actic	The following propo ethod of work of the C	sal is submitted Sommittees (ME	in accordance with the Guidelines C-MEPC 1.Circ.2, taking into acc	on the organization count the High-level		
the S and C					MSC 86/23/13	
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2 of we both for we into t	ANNEX DRAFT GUIDELINES FOR PROCEDURES OF TE STING TANKS AND TIGHT BOUNDARIES					
stren; will i	1	GENERAL				
19469	There but proceedings are to ensure the weakinghness of finites and variatight broundance and structural despersory of thinks. These procedures areas for explicible to even the seventherghness of structures/skiptocod confitting. Tiptices or of all tanks and tight broundances of the fixing at the new construction and, when more corone mixics or granult? Also see alwards the major conversional spains should be confirmed by these test procedures prior to delivery of the day.					
	2	APPLICATION				
1	2.1 All gravity tanks ⁽³⁾ and other boundaries required to be watertight or weathertight should be tested in accordance with this Guideline and proven tight and structurally adequate as follows:					
		 Watertight I 	ks for their tightness and structura <i>loundaries Other Than Tank Bour</i> <i>t Boundaries</i> for their weathertigh	idenies for their wat	ertightness, and	
2.			cargo containment systems of rds deemed appropriate by the Ad		miers should be in	
1000	2.3 Testing of structures not listed in Table 1 or 2 should be specially considered.					
	3 Types of tests and definition of test					
	3.1 The following two types of test are specified in this requirement:					
		Structural to st:	A test to verify the structural ad This may be a hydrostatic test hydropneumatic test.	lequacy of the const stor, where the s	truction of the tanks. ituation warrants, a	
111	Lack test. A test to verify the tightness of the boundary. Unless a specific test is indicated, this may be a hydrosthichydrogenumatic test or air test. Lack test with remark 3 in Table 1 include hose test as an acceptable medium of the test.					
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Major repair means a repair affecting structural integrity. Oravity-tankimeans a tank first is subject to vapour pressure not greater than 701 MASC/06/02-13.doc

8. SAJ opinion

- The point is sound balance between <u>completeness of the test</u> and <u>efficiency of</u> <u>the production</u>.
- Uniform requirements of the tests lead to too much inflexibility in application.
- Long-term actual QC results achieved by each Shipbuilder are to be considered by the Class, with a view to not impairing Shipbuilders' motivation for upgrading their QC & QA.

9. SAJ proposal



- World-wide Shipbuilding Industry should <u>demonstrate</u> their QC & QA systems, and appeal to EMSA and others for their consent to draft amendments to SOLAS and Guidelines.
- SAJ considers to deliver a message to DE 56.
- Each Shipbuilder had better make every effort to <u>upgrade</u> his QC & QA; otherwise, each Shipbuilder must accept more hydrostatic tests.

10. Schedule

- After the settlement to be reached at DE, discussion, approval, adoption by MSC and implementation will follow, which still require <u>substantial procedural period</u>.
- By then, an interim measure may be taken by IMO to cope with urgent Industry needs.



11. State of other organization

 In February 2011, ISO/TC8/SC8/(WG6) decided postponing the development of draft international standards for "Tightness for hull compartment and equipment of ship" and reconsidering the scope of the standards, in order to follow the actions to be taken by IMO. **Thank you for your attention !**

