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ANY OTHER BUSINESS

Open-top containerships Admeasurements in accordance with ITC 69

Submitted by Germany

SUMMARY

Executive summary: This paper presents a short summary of observations and recent developments made with regard to open-top containerships and their tonnage figures in view of recent developments in amending existing interpretations of the TM.5/Circ.4. The document is submitted in accordance with paragraph 29 of the Guidelines on the organization and method of work and, consequently, a relevant proposal for a new item to be included in the Sub-Committee's work programme will also be submitted to MSC 78, as appropriate.

Action to be taken: Paragraph 10

Related documents: ITC 69 Convention and TM.5/Circ. 4

Background

1 Tonnage measurement is widely used for many kinds of fees in the maritime trade and also for defining ship sizes for the purpose of safety measures in most international conventions. Historically (prior to the ITC 69 Convention), it had been done in accordance with national formulae which were developed by national authorities who decided to what extent any vessel's hull was to be included in either the "GRT" or "NRT" values. Due to the non existence of harmonised internationally accepted rules in this context, many vessels maintained more than one tonnage certificate on board, since the differences between the individual rules were rather significant and therefore most certificates would not be uniformly accepted. Port state officers had difficulties in understanding which figures to use.

2 In the 1960s the IMO undertook a major exercise in trying to develop a uniform international standard for tonnage measurement. The result is today's ITC 69 Convention, which provides an easy and transparent tonnage calculation procedure which basically includes all

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enclosed volumes of the ship hull in a number representing the gross tonnage (GT) and in another figure volumes representing the net tonnage (NT). The resulting tonnage figures are non-dimensional. They are considered to be good representation of the enclosed volumes.

3 The major advantages of this international Convention remain to be the simplicity of the formulae (giving virtually no room for interpretations) and the included international tonnage certificate where the two resulting figures are to be included on the front page. Any later circulated guidance as to possible internationally accepted instructions were agreed to be shown on the certificates second page or last page, respectively.

4 These principles have been widely accepted since the Convention entered into force in 1982, even though the ship types that were built and subsequently admeasured have changed substantially. For example at the time of development of the Convention only limited amounts of deck cargoes were carried. Therefore the authors of the Convention decided to neglect the volumes of such transporting capacities when designing the yardstick for transportation fees in the marine sector.

Open-top interpretation

5 Remarkable in this context seems to be the development of a formula addressing open-top containerships, because this ship type can be looked at as having no separation of "on deck" cargoes from cargoes carried in the hold. This specific ship type has admittedly complicated life for those involved in rule development for some time. For example load line matters, fire control measures, flood control measures, carriage of dangerous goods etc. have been addressed in the IMO in recent years trying to define safety standards for all of these hazards similar to those conventional ships have.

6 In 1993 IMO circulated a relevant measure with regard to the ITC 69 Convention: the Circular TM.5/Circ.4. The covering text invites Member States to make use of such formulae when admeasuring open-top containerships. The thus proposed formulae were related to ship sizes foreseen at the time of its development (not more than 30,000 GT) (particulars are shown in annexes 1 and 2) and did not solve the problem of the missing differentiation between inner and outer cargo carrying capacities.

Recent developments

7 Most recently it was internationally recognised that the current status was not acceptable: open-top containerships, with their larger moulded depth, have a tonnage exceeding that of comparable closed-hatch containerships by up to 20%, at about identical main dimensions.

8 The economical impact of this difference was considered unacceptable. Thus tonnage certificates as defined in the ITC 69 Convention were issued by a flag Administration even though the prescribed procedure for entries on the certificates front page was not followed. It is presumed that the respective information on this new interpretation will be submitted to IMO in due course.

Proposal

9 Meanwhile and in order to maintain the advantages of a transparent and simple harmonised system of issuing internationally acceptable tonnage certificates, Germany - in the understanding that the flag State Administration had good reasons for the course of action that was taken - would like to support the need for amending the calculation instrument of the

Tonnage Convention to better address open-top containerships. It would be much appreciated if at this occasion the more recent type vessels with large quantities of deck cargoes could be solved.

Action requested of the Sub-Committee

10 The Sub-Committee is invited to take note of the information provided in the annexes and take action as deemed appropriate.

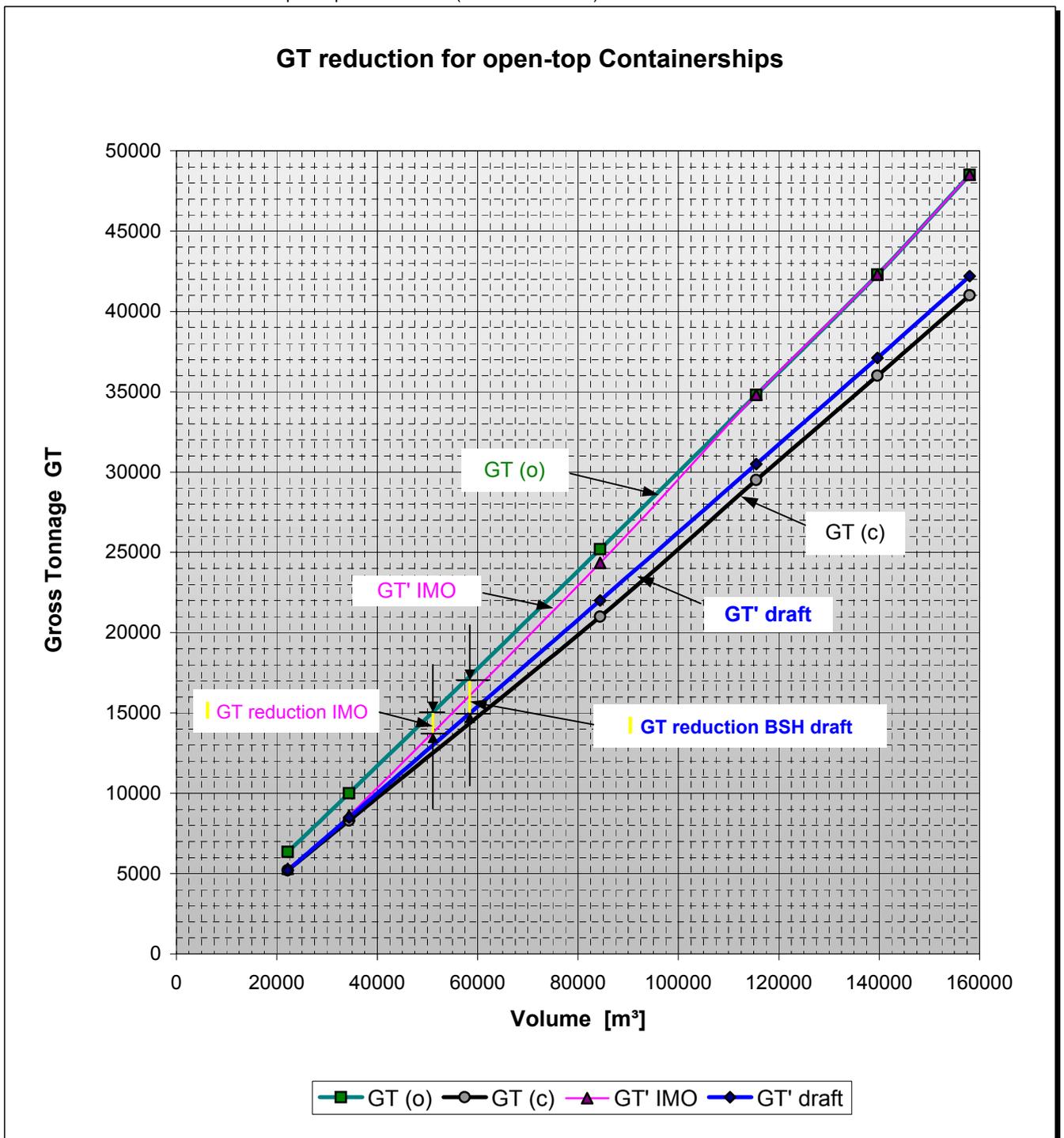
I. Reduced GT for open-top Containerships (comparison IMO-formula / BSH GT' draft)

IMO provis.: $GT' \text{ IMO} = GT \times [1 - ((30000 - GT)/1000) \times 0,007]$

BSH draft: $GT' \text{ draft} = 0,272 \times V - 825$

Examples:	V [m³]	present GT (o)	comp. with GT (c)	reduction GT' IMO	reduction GT' draft	GT' IMO red. in %	GT' draft red. in %	GT' draft / GT (c)
	1	2	3	4	5	6 = 4:2	7 = 5:2	8 = 5:3
A Sietas T160	22150	6360	5200	5300	5200	16.7	18.2	0.0
B Sietas T168	34400	10000	8300	8600	8500	14.0	15.0	2.4
C 'Shire'Fleet	84400	25200	21000	24350	22000	3.4	12.7	4.8
D HDW Dole	115500	34800	29500	34800	30500	0.0	12.4	3.4
E HDW Norasia	139650	42300	36000	42300	37100	0.0	12.3	3.1
F MHI Nedlloyd	158000	48500	41000	48500	42200	0.0	13.0	2.9

o = open-top c = closed (with hatch covers)



BSH

II. Ships data of closed container ships in comparison with open-top ships

	Name	Year b.	Type	L oa	B	D	tdw	TEU GT	resp.GTo
A	SVEN	1996	opentop	121.94	18.20	6.69	6950	700	6350
	ANTJE	1997	closed	118.25	17.90	7.08	6650	658	5050
	TANGER	1981	closed	120.54	18.40	6.49	7826	607	5370
	CARINA	1990	closed	122.02	18.70	6.95	7562	697	5800
B	M.FALMOUTH	2001	opentop	134.40	22.50	8.70	11150	862	10000
	CH.L.AMERICAS	1997	closed	138.50	21.75	8.36	11400	864	8000
	UMFOLOZI	1982	closed	133.40	20.20	8.65	11700	891	8390
	AURORA	1995	closed	132.90	22.90	7.70	9200	907	8600
C	ShireFleet	1998	opentop	201.86	26.66	9.40	14310	1388	25200
	U.RICKMERS	1997	closed	184.00	25.30	9.88	22990	1730	16800
	KOTA PERMASAN	1993	closed	182.00	28.40	11.54	30000	1750	21000
	P&O NEDLL. ORI.	1996	closed	182.09	29.80	11.55	29700	2060	21500
	SEA JAGUAR	1996	closed	205.85	27.40	10.10	21700	2100	24000
D	DOLE CHILE	1999	opentop	205.00	32.24	10.21	30000	2000	34800
	MERKUR STAR	1995	closed	203.00	30.60	11.55	39500	2480	29100
	ZIM SYDNEY	1995	closed	201.50	32.24	12.20	29800	2517	30300
	CONTSHIP	1996	closed	209.50	32.20	12.50	38450	2890	31200
E	NORASIA SINGA	1996	opentop	241.95	32.24	11.98	44500	2780	42300
	BERLIN EXPRESS	1990	closed	234.00	32.20	12.50	42026	2716	35300
	NOR.DIVINITY	1997	closed	244.90	32.20	12.00	45217	3600	36600
	ZIM KOREA	1991	closed	236.00	32.20	12.00	43600	2402	37200
F	MHI NEDLLOYD	1991	opentop	266.30	32.20	12.50	45000	3600	48500
	MARE SICULUM	1998	closed	260.66	32.24	12.50	52350	3987	40300
	VILLE d TAURUS	1997	closed	259.34	32.20	12.00	49000	3753	40500

■ Reference value most coincident

ANNEX 2**EXPLANATIONS****IMO Formula of 1993:**

The preliminary IMO formula can be used for open-top containerships up to max GT 30,000. With respect to practical operation, it was assumed that from this size there would be no difference between open and conventional containerships with hatch covers.

The reduced-value curve GT' IMO (red) is still clearly below the actual tonnage measurement curve (GT (o), green) in its lower section, and almost parallel to the curve of conventional vessels (GT (c), black) up to about GT 10,000. In the upper section, however, the reduction continues to decrease with increasing vessel size and finally drops to zero at about GT 30,000.

The formula fails when applied to vessels over GT 30,000, where a reduction is no longer achieved and such vessels remain at a disadvantage as compared to conventional closed vessels.

Development of a new formula:

Current status:

Open-top containerships, with their larger moulded depth, have a tonnage exceeding that of comparable closed-hatch containerships by up to 20%, at about identical main dimensions. The economic disadvantage to such vessels is to be adjust by a GT reduction.

Aim: to increase the attractiveness of open-top containerships:

The new formula should cover a wider GT range than the current IMO formula.

The new formula should be simple in use (linear dependence if possible).

The new formula should be based on the volume of all enclosed spaces, analogous to $GT=k*V$, not on the deadweight tonnage.

The curve derived from the new formula should be above and about parallel to the curve of conventional vessels in order to ensure that the reduced tonnage measurement result is not smaller than that of comparable vessels.

Approach:

The constants of the existing formula were changed in such a way that up to GT 50,000 the curve is almost parallel to the GT(c) curve, with a tendency toward a slightly steeper slope.

Disadvantage:

In the upper section, its shape would be similar to the existing IMO curve and, consequently, no reduction values would be obtained above GT 50,000 .

Result:

The curve thus obtained was simplified by linear regression, so that the formula is expressed as

$$GT' = 0.272 * V - 825$$

(with V = total volume in m³).

It is found that the shape of this curve (GT' draft, blue) is perfectly suitable to achieve the aim.

Advantage:

The new formula is independent of a particular tonnage size and can be applied to all open-top containerships.

Remarks:

This new formula has been developed from the existing (preliminary) IMO formula of 1993 and, for the time being, should serve as a basic for discussion. It can be refined later by taking into account more comparative data of built open-top containerships. It is not recommended to derive the comparative data for a new formula from the deadweight tonnage exclusively but also from the main dimensions as well as the contain capacity (in TEU), because the approaches are not directly comparable. Besides, it must be taken into account that, with equal main dimensions, open-top containerships have a slightly smaller TEU capacity than conventional vessels. The GT reduction achieved range between about 18% for smaller vessels and about 12% for larger vessels. The difference is due to the fact that smaller ships have a relatively higher moulded depth than larger ships (which is reflected by a steeper shape of the GT' draft curve than the GT (c) curve). Considering the fact that open-top containerships have enclosed spaces whose volume exceeds that of comparable conventional vessels by about 15 - 20%, the results of the GT reduction are quite satisfactory.
