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THE REGULATIONS FOR THE ADMEASUREMENT OF VESSELS TO ASSESS TOLLS FOR USE OF THE PANAMA CANAL¹

Chapter I

General Standards and Definitions

Article 1: These regulations establish the procedures and rules for the admeasurement of vessels, to assess the tolls to be charged by the Panama Canal Authority for the use of the Panama Canal, pursuant to its Organic Law.

Article 2: The words, expressions and acronyms used in these regulations shall have the following definitions:

Appendix. Complementary rules for the determination of the Panama Canal Universal Measurement System (PC/UMS) Net Tonnage, which is an integral part of these regulations.

Tonnage by length overall. It applies to vessels that, based on their length overall and PC / UMS Net Tonnage, pay according to the established minimum rates.

Auxiliary ship. Any vessel that is not a warship, owned or operated by a State and used, at that time, only in non-commercial government service.

Vessel capable of carrying containers on the upper deck. Vessel that does not belong to the container category, but with capacity to carry containers above the upper deck. The Authority shall determine whether a vessel belongs in this category or not, taking into consideration the information provided by the vessel.

Container/Break bulk ship. A vessel specially designed to carry containers and/or break bulk cargoes below deck. This type of vessel will typically have full width hatches and boxed holds for the carriage of break bulk cargo and/or containers and many are fitted with gantry cranes. This vessel has the ability to transport cargo on deck, some are designed with removable cells guides to transport containers under deck.

General cargo. A vessel designed to carry break-bulk general, palletized or dry cargo (individual items such as boxes, equipment and parts). Such cargoes are put in general holds with no specialization. It usually has multiple decks and facilities for loading and unloading cargo. This vessel has the ability to transport cargo on deck.

Warship. A vessel belonging to the naval forces of a State bearing the distinctive exterior insigne of warships of its nationality, under the command of an officer duly commissioned by the Government and registered in the Naval List and operated by a crew under naval discipline regularly.

¹ Approved by Agreement No. 358 of December 12, 2019.

Passenger vessels. A vessel that principally transports passengers, and normally runs on fixed published schedules. Normally, this type of vessel is provided with accommodations for more than (12) passengers. Only those specifically designed for passenger transport will be eligible for the application of the per-berth tolls charge. Those passenger vessels that also carry other types of cargo will continue to be charged on the actual toll basis (PC/UMS tonnage).

Liquefied Gas Carrier. A cargo ship constructed or adapted and used for the carriage in bulk of any liquid gas or other product listed in the table of the corresponding chapter of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk or the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IGC Code). There are two types of gas carriers: the LPGs that transport liquefied petroleum gas and the LNGs, which transport liquefied natural gas.

Dry bulk carriers. A vessel designed to carry dry cargo in bulk (such as grains, coal, minerals, metals, fertilizers and wood products).

Full Container ship. A vessel specifically designed or converted to transport containers above the upper deck and that has cellular guides permanently affixed in its holds. The Authority shall determine whether a vessel belongs in this category, taking into account the information provided by the client.

Vehicle carrier. A vessel designed with multiple decks to carry cars, trucks and other wheeled or tracked (i.e. self-propelled) vehicles and whose decks are permanent and / or movable. The vessel is fitted with ramps which enable the vehicles to be driven on and off the ship.

Chemical tanker. A vessel built or adapted to carry in bulk any liquid product listed in the corresponding chapter of the IBC Code or BC Code, as appropriate.

Refrigerated Cargo (“Reefers”). A multi deck cargo vessel whose cargo spaces are predominantly designed for the transport of refrigerated cargo such as fruit, meat, and other food products across the sea at various temperatures. Includes cargo vessels with 80 % or more insulated cargo space.

RoRo vessel. A vessel specially designed to carry wheeled trucks, trailers or containers, and use the roll on-roll off method for loading and unloading using tractor vehicles in several decks with ramps or lifts.

Crude/Product Tanker. A vessel built or adapted to carry liquid bulk, mainly crude oil and petroleum products, among others.

Maximum Draft. Maximum allowable depth (in meters) to which the hull of a vessel must be immersed when fully loaded.

Cubic cargo capacity (M³): Maximum cargo capacity of a vessel expressed in cubic meters.

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Maximum berth capacity (PAX). Total number of berths available on a passenger vessel.

Passenger Ship Safety Certificate. Safety certificate issued to all passenger ships.

International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk or Certificate of Fitness for the Carriage of Liquefied Gases in Bulk. Certificate issued to all chemical carriers engaged in international voyages and complying with the relevant provisions of the IBC or IGC Code, as appropriate.

International Tonnage Certificate, 1969 (ITC 69). International Tonnage Certificate issued in accordance with the 1969 International Convention on Tonnage Measurement of Ships.

Gas Carrier Code (GC Code): The Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, which is generally applicable to ships built after December 31, 1976, but before July 1, 1986.

Bulk Chemical Code (BC Code). The Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, which is generally applicable to ships built on or after April 12, 1972, but before July 1, 1986.

International Code on Intact Stability, 2008 (2008 IS Code). The International Code on Intact Stability 2008 (2008 IS Code), presents mandatory and recommendatory stability criteria and other measures for ensuring the safe operation of ships, to minimize the risk to such ships, to the personnel on board and to the environment.

International Gas Carrier Code (IGC Code). The International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, which is generally applicable to ships built after July 1, 1986.

International Bulk Chemical Code (IBC Code). The International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, which is generally applicable to ships built after July 1, 1986.

Upper Deck. The uppermost deck exposed to weather and sea, which has permanent means of weathertight closing of all openings in the weather part thereof, and below which all openings in the sides of the vessel are fitted with permanent means of watertight closing.

In a vessel having a stepped upper deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the upper deck.

Summer displacement. This is the total weight of the vessel in metric tons when it is loaded to its summer draft consisting of the sum of the lightweight tonnage plus deadweight summer tonnage.

Lightweight tonnage (Lightship). This is the weight of a vessel in metric tons as the shipyard

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delivers it; that is, with no fuel, stores, food and crew on board.

Fully loaded displacement. The weight of the vessel in metric tons fully loaded with all stores, cargo, water, fuel, ammunitions, the weight of officers, and crew members as well as passengers, if any, and their belongings. This definition is applied only to vessels that pay tolls based on displacement.

Enclosed spaces. Those bounded by the vessel's hull, by fixed or portable partitions or bulkheads, by decks or coverings other than permanent or movable awnings. No break in a deck, nor any opening on the vessel's hull, in a deck or in a covering of a space, or in the partitions or bulkheads of a space, nor the absence of a partition or bulkhead, shall preclude a space from being included in the enclosed space.

Excluded spaces. Notwithstanding the definition of enclosed spaces, the spaces referred to in Part C of Appendix, which are not included in the volume of the enclosed spaces. However, they shall be considered enclosed spaces when they meet any of the conditions stated in the first paragraph of the aforementioned Part.

Weathertight. Means that in any sea conditions water will not penetrate into the vessel.

Watertight. Means capable of preventing the passage of water through the structure or closure in any direction under a head of water for which the surrounding structure is designed.

Berth. Bed or sofa bed for use of a passenger on a passenger ship. The bed or sofa bed that fits two people equals two berths.

Breadth or moulded breadth (MB). The maximum breadth of the vessel, measured amidships to the moulded line of the frame in a vessel with a metal shell and to the outer surface of the hull in a vessel with a shell of any other material.

Transitional Relief Measure. is the special treatment granted to the vessels that have made a Canal transit between March 23, 1976, and September 30, 1994 and returned for transit after September 30, 1994. It consists in freezing the tonnage according to the Panama Canal Tonnage System, which was in effect up to September 30, 1994. This measure is applied to vessels as long as they have not undergone a significant structural change. This measure shall be applied to the vessels have not been subject to a significant structural change, meaning that a real variation of not less than ten percent (+/- 10%) of the total volume (V) of the ship. In the event of a significant structural change, the PC/UMS Net Tonnage shall be determined in accordance with Article 10.

The transitional relief measure shall not apply to vessels classified by the Authority as container ships.

Number of TEU Carried During a Transit (NTT): Is the product of combining the various sizes and types (general, reefers or empties) of containers carried during the transit in open spaces above

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the upper deck of vessels that are not full container vessels, but have the capacity to carry containers above the upper deck, maximizing the volumetric space, expressing such volume in TEU units according to the conversion table in Article 10. The Authority reserves the right to verify the NTT to ensure that this data complies with the standards accuracy of the Authority.

Passenger: Every person on board, other than the master, members of the crew or other persons employed or engaged in any capacity on the business of that vessel.

Courtesy passenger: Person traveling aboard the vessel, from whom no financial remuneration will be received or whose transportation does not represent a commercial advantage for the vessel.

Moulded Depth (MD): The vertical distance measured from the top of the keel to the underside of the upper deck at side, with the variations described in Part A of Appendix of these regulations.

Universal Measurement System (UMS): The set of rules, measurements and calculations applicable for determining the gross and net tonnage, adopted in accordance with the 1969 International Convention on Tonnage Measurement of Vessels.

Panama Canal Universal Measurement System (PC/UMS): The system based on the Universal Measurement System, 1969, using its parameters for determining the total volume of a vessel with the additional variations established by the Authority.

TEU (20-foot Container): A unit of measurement or reference equivalent to a 20-foot container whose length, width, and height measurements are 20, 8, and 8.5 feet, respectively. A TEU represents a volume equal to 1,360 cubic feet.

Total TEU Loaded during transit (TTL): Is the product of the combining the various sizes of containers carried with cargo transported by full container ships, maximizing the volumetric space, expressing such volume in TEU units according to the conversion table in Article 10. The Authority reserves the right to verify the TTL to ensure that this data complies with the degree of accuracy required by the Authority.

Total TEU Loaded during transit in the return voyage (TTLR): It is the total TEU loaded during transit (TTL), applicable to a neopanamax vessel in its return voyage (south), with a utilization percentage (TTL) in the northbound transit equal to or greater than 70 percent of the total TEU allowed (TTA) at the Canal and returning in a time period not greater than 28 days. This period corresponds to the time when the vessel leaves Canal waters (sea buoy) in its northbound transit until the time of its arrival to Canal waters (sea buoy) for its southbound transit. These 28 days do not consider the time spent by vessels in anchorages and ports of the Republic of Panama that are between the official exit of the Canal (sea buoy) in the north and the official arrival (sea buoy) at the Panama Canal in the southern direction. If the vessel needs to perform port activities in Panamanian terminals located outside these points, the documentation supporting the visit must be submitted to the Authority.

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Total TEU Allowance (TTA): Is the total sum of TEU allowance above and below deck.

TEU Allowance Below Deck: The total container capacity in TEU that a full container vessel is able to carry in enclosed spaces, including those that may be transported in enclosed spaces above the upper deck. This capacity is determined by using the combination of the various sizes of the containers that maximize the volume of the space, expressing that volume in TEU units.

TEU Allowance Above Deck: The total container capacity in TEU that a vessel is able to carry in open spaces above the upper deck, not including those containers that may be carried in enclosed spaces above said deck. This capacity is determined by using the combination of the various sizes of the containers that maximize the volume of the space, expressing that volume in TEU units, which shall be adjusted to compensate for the visibility restriction of the Authority.

Summer Deadweight Tonnage (DWT): Maximum cargo capacity in metric tons of a vessel when it is completely submerged in its summer draft. It includes the weight of cargo, fuel, lubrication oils, supplies, fresh water in the tanks, passengers and equipment, crew and their belongings.

Timber Summer Deadweight Tonnage (TDWT): Maximum cargo capacity in metric tons of a vessel when it is completely submerged at its timber summer draft. It includes the weight of cargo, fuel, lubrication oils, supplies, fresh water in the tanks, passengers and equipment, crew and their belongings.

Total volume (V): The enclosed space of the vessel, expressed in cubic meters.

Article 3: The following shall be subject to measurement:

1. The enclosed spaces below deck.
2. The enclosed spaces above deck.
3. The maximum capacity of the vessel to transport containers under the upper deck and on it.
4. Maximum berth capacity
5. Cubic cargo capacity
6. Summer deadweight tonnage or Timber Summer Deadweight Tonnage
7. Maximum displacement

Article 4: The Administrator of the Authority shall interpret and apply the rules for the admeasurement of vessels set out in this regulation.

Chapter II

Determination of the Admeasurement of Vessels to Assess Tolls for Use of the Panama Canal

First Section Requirements

Article 5: For the purpose of admeasurement, the vessels transiting the Canal shall present an ITC 69 or a substitute document deemed acceptable by the Authority, based on a system substantially

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similar to the one adopted by the aforementioned agreement. In addition, these same vessels shall provide drawings, classification certificates and documents with information stating the V, DWT, TDWT, M³, PAX and maximum displacement of the vessel or documentation to determine these parameters through mathematical calculations.

For purposes of passenger vessels, in addition to what was mentioned in the previous paragraph, the vessels must also present the Passenger Ship Safety Certificate, Stability Declaration, International Code on Intact Stability, Devices and Means of Rescue or any other official document or certificate indicating the Maximum Capacity of Berths that is endorsed by the International Convention for the Safety of Human Life at Sea 1974 and its modifications (SOLAS), so as to ensure compliance with the rules of admeasurement established by the Authority and /or document accepted by the Authority where the maximum berth capacity is established. If these documents do not comply with the standards of acceptable accuracy by the Authority, the alternate admeasurement method set forth in these regulations will be used.

All chemical tankers must additionally present the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk, as appropriate, to determine the type (1, 2, 3 or combination that is presented). If certificates are not obtained or does not meet the criteria to determine the type of chemical tanker, it is subject to what is determined by the Authority.

Those vessels with a length overall and PC/UMS Net Tonnage that pay according to the minimum fixed tonnage, and vessels subject to the transitional relief measures, are exempted from the requirement of presenting the documents mentioned in this article.

The transitional relief measures only apply to vessels that pay based on CP / SUAB Net Tonnage.

Article 6: In addition to the requirements of the previous article, vessels with the capacity to carry containers shall provide drawings, classification certificates, and documentation with sufficient information to determine TEU allowance below deck and TEU allowance above deck, as defined in Article 2 of this Regulation.

The information to which the preceding paragraph makes reference shall be obtained from the Cargo Securing Manual (CSM), the General Arrangement Plan (GA), or any other document or official drawing which shall indicate the total number of containers and their measurements. In the event these documents do not comply with the standards of accuracy acceptable by the Authority, the alternate method of admeasurement set forth in this Regulation shall be followed.

All information referenced in this article and the preceding shall be submitted to the Authority when it requests it.

Article 7: Vessels that fail to provide the documents required by the previous articles of these regulations shall be subject to inspection by the Authority to determine their V, in accordance with the PC/UMS, M³, DWT, TDWT, PAX, total TEU allowed or maximum displacement, as

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established in this regulation.

Article 8: The Authority shall establish **V** to calculate the PC/UMS Net Tonnage; further, the Authority shall establish the values of TEU allowance below deck and TEU allowed above deck, as may be applicable. For passenger ships, the Authority shall establish **V**, PAX and the PC/UMS/PAX ratio. The Authority shall establish the DWT or TDWT for dry bulk carriers, M³ for gas carriers and maximum displacement for warships, dredges, floating drydocks and any other floating equipment whose tonnage is calculated based on its maximum displacement, as applicable.

The Authority may request complementary information of the vessel for the calculations of the **V**, TEU allowance below deck, TEU allowance above deck, PAX, DWT, TDWT, M³ and maximum displacement. Regardless of the above, the calculations may be adjusted based on the inspections to obtain the accuracy to the degree required by the Authority.

If the requested documents are not obtained or do not comply with the accuracy required by the Authority, the **V**, TEU allowance below deck, TEU allowance above deck, PAX, DWT, TDWT, M³ and maximum displacement, the user shall accept the figures calculated by the Authority.

Second Section Tonnage

Article 9: The tonnage of a vessel shall consist of the calculation of PC/UMS Net Tonnage, TEU allowance below deck and TEU allowance above deck, M³, DWT, TDWT, PAX, the PC/UMS/PAX ratio, maximum displacement and tonnage by length overall, as may be applicable. These calculations shall be determined in accordance with provisions established in this Regulation.

The tonnage of novel types of craft whose construction features make application of the rules unreasonable or impossible shall be determined in a manner that is acceptable to the Authority.

Article 10: PC/UMS Net Tonnage of vessels shall be calculated by using the following formula:

$$\text{PC/UMS Net Tonnage} = K_4(V) + K_5(V)$$

For all vessels classified by the Authority as a passenger vessel, passengers and their belongings will be considered as cargo; therefore, all spaces that have been identified and certified for the use or possible use of passengers, such as: balconies, swimming pools and corridors, will be included in **V**. For this type of vessel, in the calculation of the PC/UMS Net Tonnage, the definition of “excluded spaces,” as defined in Regulation 2 of section 5 of ITC-69, does not apply to such spaces.

For all vessels classified by the Authority as full container vessels, the admeasurement shall be based on the total TEU allowance, which shall be calculated by the following formula:

$$\text{Total TEU allowance} = \text{TEU allowance above deck} + \text{TEU allowance below deck}$$

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To determine TEU allowance below deck, TEU allowance above deck, and NTT, TTL and TTLR as may be applicable, the following conversion table will be used.

SIZE	CALCULATION	EQUIVALENCE
20' x 8' x 8.5'	1360/1360	1.00 TEU
20' x 8' x 9.5'	1520/1360	1.12 TEU
40' x 8' x 8.5'	2720/1360	2.00 TEU
40' x 8' x 9.5'	3040/1360	2.24 TEU
45' x 8' x 9.5'	3420/1360	2.51 TEU
48' x 8' x 9.5'	3648/1360	2.68 TEU
54' x 8' x 9.5'	4104/1360	3.02 TEU

Any container whose size is not listed in the preceding table shall obtain its equivalence using the same method of calculation.

For a passenger vessels, toll collection will be applied based on PAX or PC/UMS Net Tonnage. The application of a toll is determined by two design parameters: (a) net tonnage determined by ITC 69 and (b) the PC/UMS/ to PAX ratio.

Vessels over 30,000 gross tons (ITC 69) and whose PC/UMS/PAX ratio is less than or equal to 33, shall pay tolls on a per berth basis. Passenger vessels not complying with these two criteria and those passenger vessels that in addition to the passengers transport other types of cargo, will continue to pay on the basis of PC/UMS tonnage.

For dry bulk carriers, toll charge shall be charged using the DWT parameter according to what is shown in the capacity plan, deadweight scale, stability booklet, hydrostatic table or any other document acceptable to the Authority.

For dry bulk carriers with a timber summer deadweight (TDWT), tolls shall be charged using on the DWT or TDWT, whichever is greater, according to what is shown in the capacity plan, deadweight scale, stability booklet, hydrostatic table or any other document acceptable to the Authority. This only applies when the vessel has a valid timber summer draft and is transiting with timber on deck.

The DWT or TDWT is determined by using the following formula:

Summer deadweight tonnage (DWT or TDWT) = Summer displacement or Timber summer displacement – Light displacement tonnage

For gas carriers, the tolls will be assessed based on the M³ parameter according to the capacity plan, stability booklet, cargo manual and any other document acceptable to the Authority.

For warships, dredges, floating drydocks and any other floating equipment whose tonnage is calculated based on its maximum displacement, the toll will be assessed based on the maximum

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displacement parameter according to stability booklet, hydrostatic tables, capacity plan and any other document acceptable to the Authority.

Article 11: Vessels whose PC/UMS Net Tonnage is calculated in accordance with Article 10, may be subject to a new admeasurement if there is a change in the *V*.

Article 12: The full container vessels whose total TEU allowance is calculated pursuant to Article 10, shall maintain said total as long as they have not undergone a structural or documentation change affecting the total TEU allowance. In the event of a structural change or documentation change affecting the carrying capacity of same, the total TEU allowance shall be determined pursuant to the provisions of said article.

Vessels with the capacity to carry containers above the upper deck, whose TEU allowance above deck has been calculated as defined in these regulations and which undergo structural or documentation changes affecting said TEU allowance above deck, shall be established using the conversion table in Article 10.

Passenger vessels whose PAX was established in accordance with the provision of Article 10, shall maintain this total unless it undergoes a structural change or change in number of berths. In case of a change, *V*, PAX and the CP/UMS/ PAX ratio shall be established using the ratio established in Article 10. In case there is a change in *V*, which does not affect the number of previously established berths, the change will be audited to determine whether or not berth capacity has been affected.

Vessels whose **DWT** or TDWT has been calculated in accordance with the provisions of Article 10, maintain their values if they do not undergo structural and stability changes or changes in hydrostatic properties that impact their deadweight scale and affect flotation line.

Vessels whose **M³** has been calculated in accordance with the provisions of Article 10, shall maintain their value if they do not undergo structural changes in cargo tanks or in its hydrostatic properties that impact their capacity.

Vessels whose maximum displacement has been calculated in accordance with the provisions of Article 10, will maintain their values as long as no structural changes, stability, or hydrostatic properties are made that impact the deadweight scale and affect the draft and consequently vary the maximum displacement.

Article 13: All volumes included in the calculation of the PC/UMS Net Tonnage shall be measured, irrespective of the fitting of insulation or the like, to the inner side of the shell or structural boundary plating in vessels constructed of metal, and to the outer surface of the shell or to the inner side of structural boundary surfaces in vessels constructed of any other material.

The *V* shall include the volume of the appendages of the vessel and may exclude the spaces open to the sea.

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Article 14: All measurements used in the calculation of volume shall be taken to the nearest centimeter or to one-twentieth of a foot.

The volumes shall be calculated by generally accepted methods for the space concerned, and with the degree of accuracy accepted by the Authority, verifying the calculations in a detailed manner, so that their precision may be corroborated.

Chapter III Alternative Method for the Admeasurement of Vessels

Article 15: When an ITC 69 or suitable substitute or the necessary documentation to calculate the V have not been presented, or when these documents do not comply with the standards of accuracy acceptable by the Authority, the vessels will be measured to include the entire cubic contents of the closed spaces to establish V , as is defined in this chapter.

In the event of vessels classified by the Authority as a full container vessel or vessels with the capacity to carry containers on or above the upper deck that have not submitted the Cargo Securing Manual and the General Arrangement Plan, their equivalents, or when these documents do not comply with the standards of accuracy acceptable by the Authority, the TEU allowance below deck and TEU allowance above deck, as may be applicable, shall be established using any other method acceptable to the Authority.

In the event of vessels classified by the Authority as a passenger vessel that has not presented the documents listed in the first paragraph of this article and/or the Passenger Ship Safety Certificate, or when the documents provided do not comply with the standards of accuracy acceptable by the Authority, the Authority will determine V , the maximum passenger capacity (PAX) and the PC/UMS/ PAX ratio, using any other method acceptable to the Authority.

In the event of vessels classified by the Authority as a dry bulk carrier that has not presented their stability booklet or hydrostatic tables, the capacity plan or when these documents do not comply with the standards of accuracy acceptable by the Authority, the DWT or TDWT will be established using any other method acceptable to the Authority.

In the event of vessels classified by the Authority as a gas carrier that has not presented their stability booklet or hydrostatic tables, the capacity plan and Certificate of Fitness for the Carriage of Chemical Products in Bulk or International Certificate of Fitness for the Carriage of Chemical Products in Bulk, as appropriate, or when these documents do not comply with the standards of accuracy acceptable by the Authority, the M^3 will be established, using any other method applicable to the Authority.

Article 16: The Authority shall endeavor to determine the V , TEU allowance below deck, TEU allowed above deck, DWT, TDWT M^3 , PAX and the PC/UMS/PAX ratio and maximum displacement, as may be applicable, as accurately as possible, based on the information available

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at the time of the calculation. For this calculation, generally accepted measures will be used to obtain the precision margin required by the Authority.

Article 17: Vessels that do not present the documentation required or when these documents do not comply with the precision acceptable by the Authority, shall be measured as follows:

1. The volume of structures above the upper deck may be determined by any method or combination of methods that are acceptable to the Authority. These methods shall include simple geometric formulas, Simpson's rules and other standard mathematical formulas. If special procedures are used, they must be identified.

Measurements and calculations should be sufficiently detailed and concise, so as to permit easy review by the Authority.

2. The volume of the hull under the upper deck (UDV) shall be determined by using the following formula:

$$UDV = \{0.91 \times [(LOA \times MB) \times (D - SLD)]\} + (SLDISP/1.025)$$

If the previous formula proves unworkable, the V of the hull below the upper deck shall be determined by multiplying the product of the LOA, MB and D, as defined in Part G of the Appendix, by the corresponding coefficient indicated in the following table:

LOA IN METERS	COEFFICIENT
> 0 to 30	.7150
> 30 to 60	.7250
> 60 to 90	.7360
> 90 to 120	.7453
> 120 to 150	.7328
> 150 to 180	.7870
> 180 to 210	.8202
> 210 to 240	.7870
> 240 to 270	.7328
> 270	.7453

3. The V of a vessel is the sum of the volume of the structures above the upper deck as determined in accordance with (1) above, and the volume of the hull below the upper deck, as determined in accordance with the parameters established in (2) above.

4. The figures of the parameters used to calculate the toll basis may be determined by any method or combination of methods that are acceptably by the Authority.

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Article 18: A vessel whose method of admeasurement has been determined in accordance with article 15 may apply for re-admeasurement by submitting new corrected plans or other relevant documents acceptable by the Authority to recalculate the tonnage of the vessel.

Chapter IV Admeasurement Certificate

Article 19: The admeasurement of vessels shall be carried out by the Authority's specialized personnel, or by agents authorized by it. Each vessel shall present to the Authority, when requested by it, a complete set of drawings, documents, breakdown of the total volume and calculation sheets, with the dimensions that served as the basis for obtaining its ITC 69 or its equivalent, and a copy of the same.

For vessels with a net tonnage based on capacity parameters (DWT, TDWT, M³, PAX and maximum displacement), the vessel will make available to the Authority the drawings, deadweight scale, stability booklet, hydrostatic tables and any other document that serves as source for the corresponding parameter.

Article 20: The Authority shall deliver to each vessel, ship owner or its agent, the ACP Toll Basis Certificate, which shall be maintained aboard as proof that it has been inspected and measured.

Article 21: The Authority may correct the ACP Toll Basis Certificate when a difference in the admeasurement of the vessel is found after examining the documents or inspecting the vessels, as applicable.

Chapter V Warships, Dredges and Floating Drydocks

Article 22: The toll on warships, dredges and floating drydocks shall be based on their fully loaded displacement or and any other floating equipment whose tonnage is calculated based on its maximum displacement. To this effect, these vessels shall be required to submit documents stating accurately the displacement tonnage at each possible mean draft.

Article 23: The fully loaded displacement of these vessels shall be determined in a manner acceptable to the Authority, and shall be expressed in metric tons.

Article 24: If the user does not submit the necessary documents, the Authority may use any acceptable and practicable method to determine the fully loaded displacement.

Chapter VI Final Provisions

Article 25: For the purpose of the preparation of the documentation required by the Authority, a vessel must meet the following conditions to be considered in ballast status:

1. It may not carry passengers except for courtesy passengers. The vessel cannot carry any cargo, except for the effects needed for the operation of the vessel or for the use or consumption by the crew on board, as determined by the Authority.
2. It may not carry fuel for the vessel's consumption in quantities that exceed the capacity of the spaces designed and certified for it, as shown in the vessel's capacity plan or any official documents.
3. For cases where the vessel carries containers on deck, the Authority must determine the purpose of the containerized cargo. If the purpose is not commercial, the container is charged as NTT but the ballast condition is not invalidated. If the purpose is commercial, the container is charged as NTT and the toll must be charged using the laden rate.
4. LPG vessels can carry up to a maximum of two (2) percent of the total cargo capacity expressed in cubic meters of cargo capacity (LPG) of the spaces designed and certified for it, as shown in the vessel's capacity plan or any official document.
5. LNG vessels may carry up to a maximum of ten (10) percent of the total cargo capacity expressed in cubic meters of cargo capacity (LNG) of the spaces designed and certified for it, as shown in the vessel's capacity plan or any official document.
6. It may not carry cargo, materials or products with the exception of those for the operation of the vessel or for the use or consumption on board by the crew, as determined by the Authority.

Notwithstanding the preceding paragraph, a vessel of any segment may be considered in ballast when transiting with a minimum percentage of vessel use of capacity, as determined by the Board of Directors on a proposal from the Administration. To this end, the Administration shall previously submit to the Board of Directors the well-supported proposal indicating the segment and type of vessel and the minimum percentage of vessel capacity to be considered in ballast and the period of time of the year in which it intends to implement this provision.

Article 26: Vessels passing through the locks at either end of the Panama Canal and returning to the original point of entry without passing through the locks at the other end of the Canal, shall be considered as having made a full transit. Re-entry of the same vessel shall be considered a new transit.

Article 27: Vessels that based on their length overall and PC/UMS Net Tonnage pay according to their fixed minimum rates, unless otherwise prescribed by other regulations, are exempted from the PC/UMS admeasurement, except those cases established in other regulations.

APPENDIX

A. EXPANSION ON THE DEFINITION OF MOULDED DEPTH:

In wood and composite vessels the distance is measured from the lower edge of the keel rabbet. Where the form at the lower section of the midvessel section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

In vessels having rounded gunwales, the moulded depth shall be measured to the point of

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intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwales were of angular design.

Where the deck is stepped and the raised section of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower section of the deck along a line parallel with the raised section.

B. MEANING OF THE SYMBOLS USED WITH THE FIGURES IN THIS REGULATION:

O = excluded space C = enclosed space

I = space to be considered as an enclosed space. Hatched in parts to be included as enclosed spaces.

B = breadth of the deck in way of the opening

In vessels with rounded gunwales the breadth is measured as indicated in Figure 11.

C. DEFINITION OF EXCLUDED SPACES:

Are the spaces described below, unless they meet any of the following three conditions, in which case they shall be considered enclosed spaces:

- The space is fitted with shelves or other means for securing cargo or stores.
- The openings are fitted with any means of closure.
- The construction provides any possibility of such openings being closed.

1.a. A space within an erection opposite an end opening extending from deck to deck except for a curtain plate of a depth not exceeding by more than 25 millimeters (one inch) the depth of the adjoining deck beams, such opening having a breadth equal to or greater than 90 percent of the breadth of the deck at the line of the opening of the space. This provision shall be applied so as to exclude from the enclosed spaces only the space between the actual end opening and a line drawn parallel to the line or face of the opening at a distance from the opening equal to one-half of the width of the deck at the line of the opening (Figure 1):

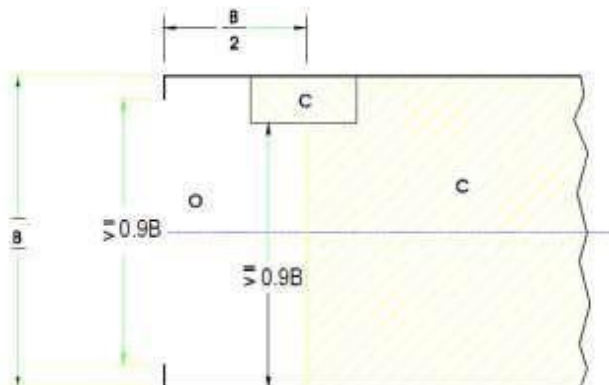


Fig. 1

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- 1.b.** Should the width of the space because of any arrangement except by convergence of the outside plating, become less than 90 percent of the breadth of the deck, only the space between the line of the opening and a parallel line drawn through the point where the athwarships width of the space becomes equal to or less than 90 percent of the breadth of the deck shall be excluded from the volume of enclosed spaces. (Figures 2, 3 and 4):

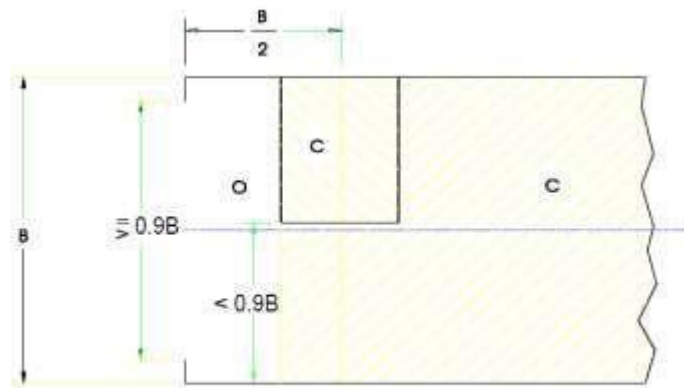
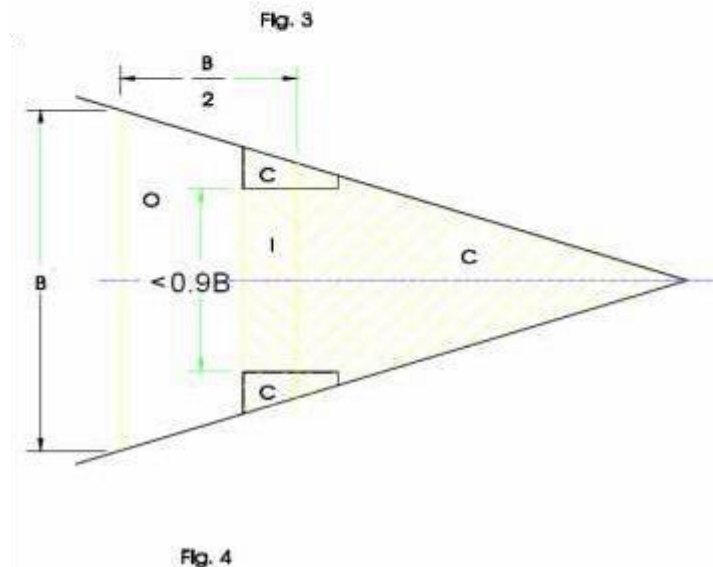
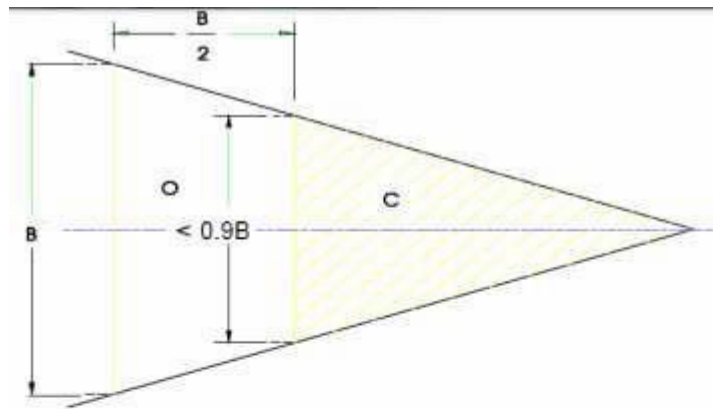


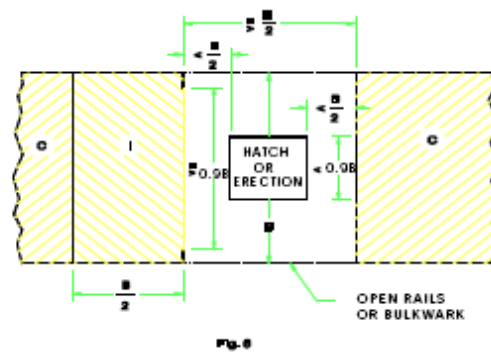
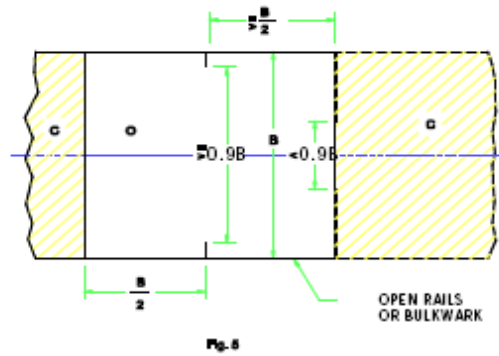
Fig. 2

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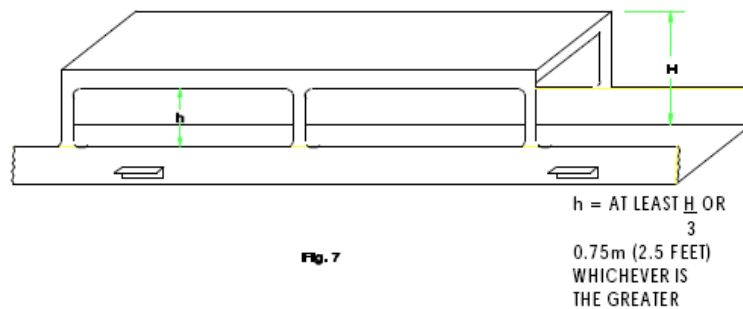


- 1.c.** Where an interval which is completely open except for bulwarks or open rails separates any two spaces, the exclusion of one or both of which is permitted under paragraphs 1.a and 1.b, such exclusion shall not apply if the separation between the two spaces is less than the least half breadth of the deck in way of the separation. (Figures 5 and 6):

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2. A space under an overhead deck covering open to the sea and weather, having no other connection on the exposed sides with the body of the vessel than the stanchions necessary for its support. In such a space, open rails or a bulwark and curtain plate may be fitted or stanchions fitted at the vessel's side, provided that the distance between the top of the rails or the bulwark and the curtain plate is not less than 0.75 meters (2.5 feet) or one-third of the height of the space, whichever is the greater. (Figure 7).



3. A space in a side-to-side erection directly in way of opposite side openings not less in height than 0.75 meters (2.5 feet) or one-third of the height of the erection, whichever is the greater. If

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the opening in such an erection is provided on one side only, the space to be excluded from the volume of enclosed spaces shall be limited inboard from the opening to a maximum of one-half of the breadth of the deck in way of the opening (Figure 8).

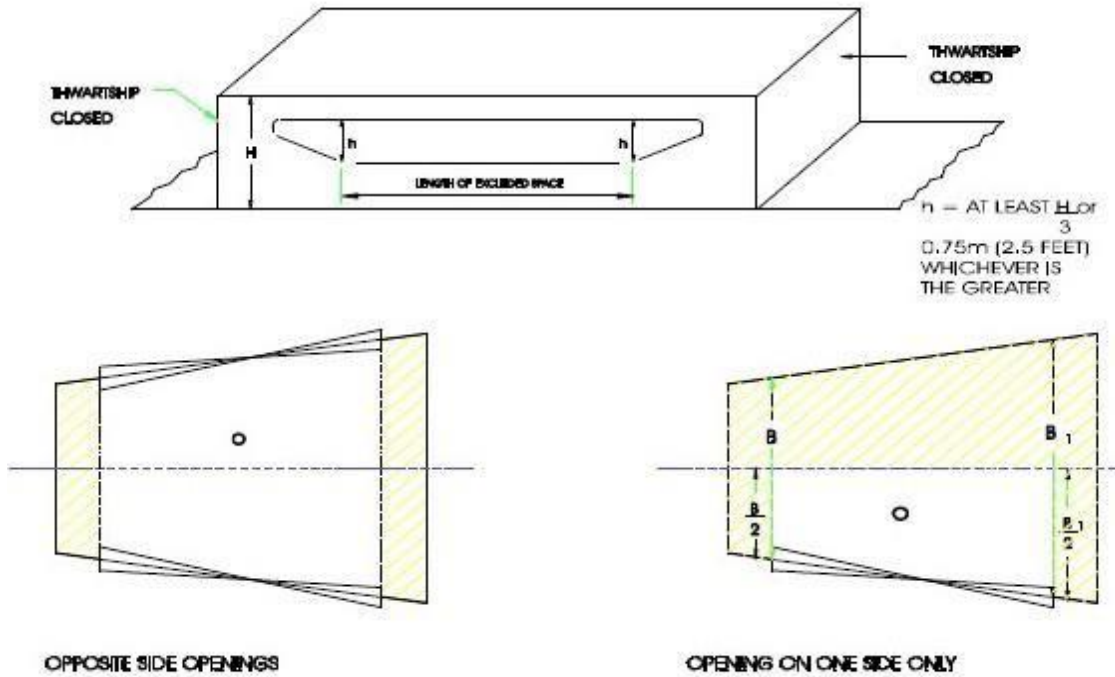


Fig. 8

4. A space in an erection immediately below an uncovered opening in the deck overhead, provided that such an opening is exposed to the weather and the space excluded from enclosed spaces is limited to the area of the opening. (Figure 9).

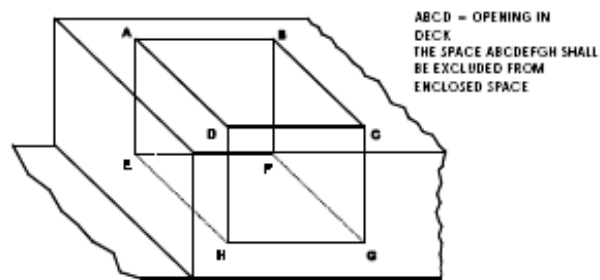


Fig. 9

5. A recess in the boundary bulkhead of an erection which is exposed to the weather and the

opening of which extends from deck to deck without means of closing, provided that the interior width is not greater than the width at the entrance and its extension into the erection is not greater than twice the width of its entrance. (Figures 10 and 11).

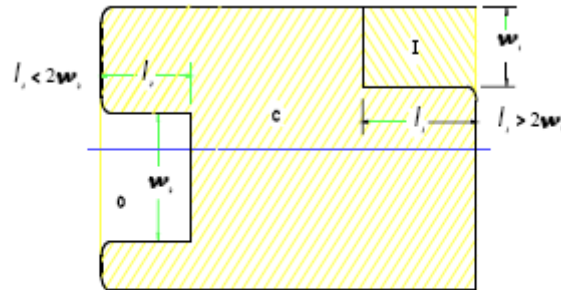


Fig. 10

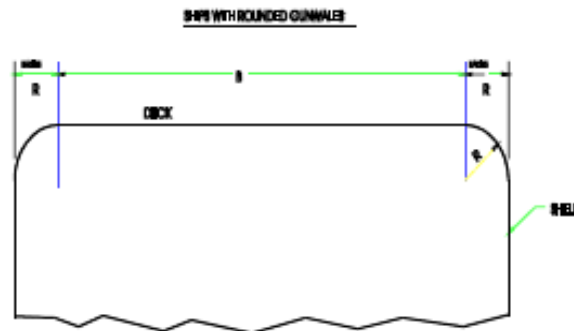


Fig. 11

D. EXPANSION OF THE DECK:

In a vessel having a stepped deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper section of the deck is taken as the deck.

E. DETERMINATION OF THE PC NET TONNAGE IN ACCORDANCE WITH THE UMS:

Explanation of the component of the formula as stated in Article 10: PC/UMS Net Tonnage = $K4(V) + K5(V)$

a. $K4 = \{0.25 + [0.01 \times \text{Log}_{10}(V)]\} \times 0.830$

b. $K5 = [\text{Log}_{10}(\text{DA}-19)] / \{[\text{Log}_{10}(\text{DA}-16)] \times 17\}$

If the number of passengers ($N1 + N2$) is greater than 100 or DA is equal to or less than 20.0

meters, then K5 is equal to zero.

- c. V = Total volume of all enclosed spaces of the vessel in cubic meters and is identical to V as specified in the 1969 International Convention on Tonnage Measurement of Ships (ITC 69).
- d. DA (Average depth) = The result of the division of the V by the product of the length in meters multiplied by the moulded breadth in meters. $DA = V/(L \times MB)$.
- e. L (Length) is defined as 96 percent of the total length on a waterline at 85 percent of the least moulded depth measured from the top of the keel, or the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.
- f. MB = Moulded breadth is defined in Article 2.
- g. N1 = Number of passengers in cabins with no more than 8 berths.
- h. N2 = Number of other passengers.
- i. $N1 + N2$ = Total number of passengers the vessel is permitted to carry as indicated in the vessel's passenger certificate.

F. CHANGE IN THE PC/UMS NET TONNAGE:

The Authority shall perform a fair and equitable volumetric comparison where a vessel does not have total comparative volumes according to ITC 69, or other suitable source of volumetric comparison, to determine if the vessel's structure has undergone a significant change.

G. MEASUREMENT OF VESSELS WHEN TONNAGE CANNOT BE OTHERWISE ASCERTAINED:

For vessel whose net tonnage is calculated based on PC/UMS: $UDV = \{0.91 \times [(LOA \times MB) \times (D - SLD)]\} + (SLDISP/1.025)$

Where:

UDV = Volume of the hull below the deck, in cubic meters.

LOA = The Length overall, i.e., the length of the vessel in meters from the foremost to the aftermost points, including a bulbous bow if present.

MB = Moulded breadth in meters as defined in Article 2. D = Moulded depth in meters as defined in Article 2.

SLD = Summer loaded draft (in meters) i.e., the maximum depth to which the vessel's hull may be immersed when in a summer zone

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SLDISP = Summer loaded displacement, i.e., the actual weight in metric tons of the water displaced by the vessel when immersed to her SLD.