Maritime & Coastguard Agency

MARINE GUIDANCE NOTICE

MGN 527 (M)

Tonnage Measurement – Clarification of Procedure – Multihulls Under 24m Load Line Length

Notice to all Builders and Surveyors of vessels under 24m Length
UK Authorised Small Commercial Vessel Certifying Authorities
UK Authorised Small Commercial Vessel Tonnage Measurers
UK Authorised Recognised Organisations

This notice should be read with S.I. 1997 No.1510
This MGN will be revoked on publication of the Instructions to Surveyors for the measurement of small vessel tonnage.

Summary

This MGN clarifies the procedure for calculating the tonnage of small multihull vessels and defines the use of tonnage breaks as they apply to multihulls in advance of publication of a wider Instructions to Surveyors for the tonnage measurement of small (under 24m) vessels.

1. Background

1.1 The procedure for determining the tonnage of under 24m multihulls is detailed in Part III of S.I. 1997 No.1510. It has come to the attention of the MCA that there exists some confusion as to how simplified tonnage measurement should be applied to multihull vessels. This confusion has, in some cases, resulted in the calculation being over simplified. Clarification is required because over-simplifying the calculation can result in the calculated tonnage being larger than it should be. This could result in non-compliance with otherwise applicable regulations and also creates potential inconsistencies where tonnage is used to determine the application or otherwise of an instrument or regulation.

1.2 In addition to the problem outlined there has existed in the past a large amount of confusion as to the application of the definition of breaks to multihull tonnage measurement.

2. Principles of Multihull Tonnage Measurement

2.1 The tonnage of vessels under 24m in Load Line Length is calculated by means of the simplified tonnage formula whereby the tonnage of the ship is the sum of:

(a) the product of multiplying together its length overall, extreme breadth over the outside hull and depth in metres and multiplying the resultant figure by 0.16; and

(b) the tonnage of any break or breaks, calculated for each break by multiplying together its mean length, mean breadth and mean height in metres and multiplying the resultant figure by 0.35.

For multihull vessels the tonnage is calculated separately for each hull (calculated according to paragraph a) above), the hull tonnages are then added together, along with the tonnage of any breaks, to arrive at the final tonnage figure. When applying the above method the hulls are taken as if they are monohulls and no cross deck or weather deck structure is taken into account in part a) of the calculation.

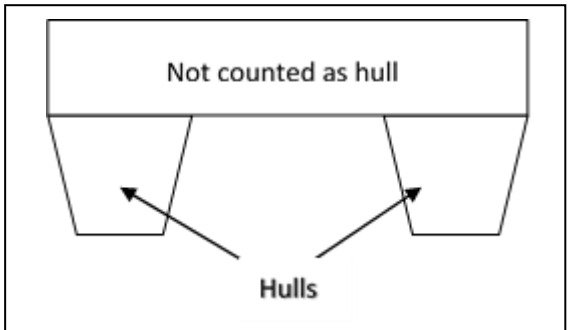

Figure 1: Hull definition

2.2 It has come to the attention of the MCA that that there exist a number of multihull vessels that have been measured in an erroneous fashion due to a misapplication of the tonnage calculation. The fundamental errors (interpretations relating to breaks are explained in the next section) found to date include:

2.2.1 Not separating the hulls and measuring the outside envelope of the vessel as a single entity taking the extreme breadth over both hulls as the breadth.

2.2.2 As for 2.2.1 but first dividing the overall outside envelope in half, calculating the tonnage of each half and then adding them back together.

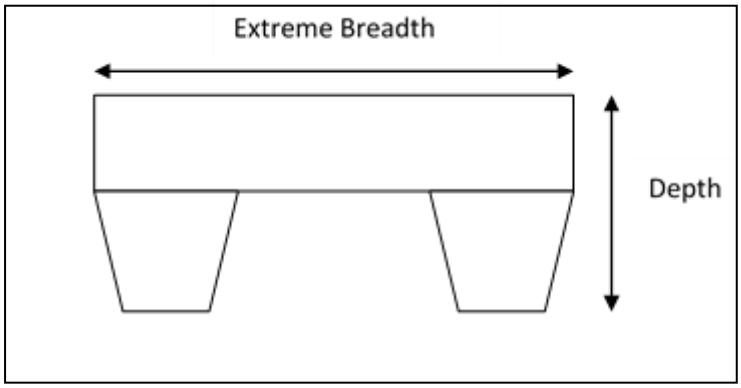

Figure 2: Dimensions of external envelope

2.3 It can be seen that employing either of the methods in 2.2.1 or 2.2.2 will result in a higher tonnage figure than that obtained by employing the correct method as a large amount of empty space is also taken into account in the calculation.

2.4 It should be noted that if the wet deck of a multihull vessel is continuously submerged or in continuous contact with the water when afloat then the vessel is no longer considered to be a multihull.

3. Tonnage Breaks for Multihulls

3.1 As noted in section 2.1 the tonnage calculation is the sum of the hull tonnage(s) plus the tonnage of any breaks (calculated according to the formula in b). Over the years different surveyors have taken account of different structure when measuring breaks and calculating tonnage.

3.2 The definition of break as found in S.I. 1997 No. 1510 paragraph 2 is:
The space bounded longitudinally by a side to side upward step in the lowest line of the upper deck and another such step or the end of the ship, transversely by the sides of the ship and vertically by the higher part of the deck and the lowest line of the upper deck continued parallel thereto.

3.3 Sections 3.4 to 3.5 below discuss how this definition is applied when considering what parts of a multihull structure constitute breaks. These sections include simplified diagrams included to help clarify the area under consideration. Within the definition of break 'side to side' is taken to mean a structure that extends across the full breadth of the vessel and this is further clarified by the definition of boundaries.

3.4 When considering cross deck structure between the hulls of a multihull vessel it is important to note the fact that a break is a 'side to side upward step'. Since any structure between the hulls neither extends to the sides of the vessel, nor constitutes an upward step this structure should not be included in the tonnage calculation as a break, or indeed at all. The shaded area in Figure 3 below is not counted as a break.

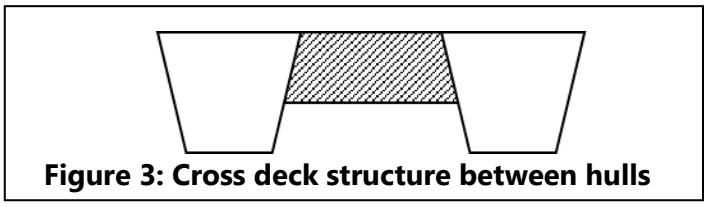

Figure 3: Cross deck structure between hulls

3.5 A deckhouse that does not extend to the sides of the vessel is not considered to be a break. This is because it is not a side to side step across the entire breadth of the vessel. This can be seen in Figure 4, the shaded area does not constitute a break.

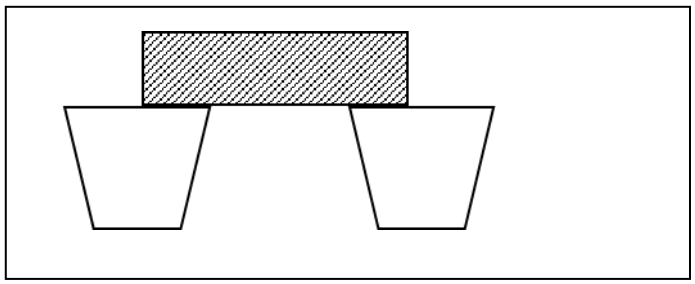

Figure 4: Deckhouse not extending side to side

3.6 Because the lower boundary of a break is defined as “the lowest line of the upper deck continued parallel thereto”, if a side to side structure has a lower deck it does not constitute a break. Figures 5 and 6 illustrate this scenario, showing a decked structure not constituting a break and a full width break respectively. In Figure 5 the shaded area does not constitute a break, in Figure 6 the dotted area constitutes a break as there is no deck underneath the step in the side hulls.

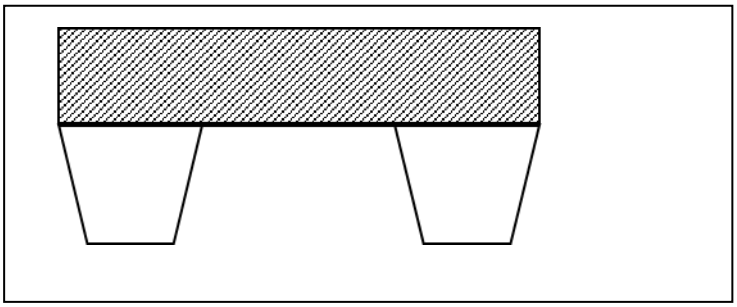

Figure 5: Side to side step with deck underneath

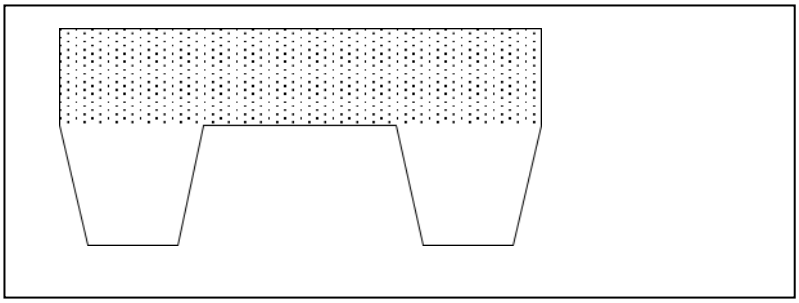

Figure 6: Side to side upward step constituting a break

3.7 It should be noted that the wet deck between the hulls does not preclude the arrangement in Figure 6 from counting as a break. When considering breaks a distinction is made between wet deck structure and an internal deck. The internal deck is taken as a deck which separates two enclosed spaces, in this case the side hull and the upper enclosed structure whereas the wet deck acts as the boundary to an enclosed space. As the wet deck in Figure 6 does not extend to the sides of the vessel it is, in effect, a deck with two large permanent openings for the side hulls and thus the step above is still a break.

4. Existing Vessels and the Way Forward

4.1 The MCA is aware that several different measurement methodologies have been employed over the years. Certifying Authorities and other small craft tonnage measurers are required to ensure that their measurers are correctly applying the tonnage calculation for multihulls and that interpretations follow the advice given in this MGN. Correct application of the simplified tonnage measurement procedure will be checked during CA monitoring visits, where appropriate action for any non-compliant calculations will be agreed.

4.2 Although it has been attempted to cover many of the common questions relating to multihull tonnage in this MGN any questions with regard to interpretation or application of the regulations should be directed to the Marine Technology branch of the MCA.

More Information

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