

NAUTICAL NOTES

NOTE NO 12

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Is Size Important or "S.H.E.T."



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Size is important as far as the Renault Clio advertisement is concerned and there are sufficient "double entendres" around to ensure that the subject is always up for review.

Everyone is quite aware of the size of ships and how they have increased in size over the years, but how necessary is it to be aware of what the real size is?

I remember those heady days of youth when tankers grew in size sometimes overnight and sometimes for administrative reasons (I remember some of Shell's M Class growing from 190,000 to 210,000 tons by a recalculation of freeboard before they were even launched)! A ship in those days was measured for gross and nett tonnages, deadweight and displacement and everyone knew what it meant.

Many changes have taken place that now make life more complicated and require a new look at tonnage measurement before mistakes are made.

The problem concerns tankers with double hulls (or just segregated ballast). These vessels will have all the usual tonnages, but they mean less than they used to and in most cases are downright misleading.

Let us take the case of the motor tanker "Absolutely Wonderful". She arrives off port with a part cargo of 170,000 tonnes of crude oil. The Port Authority (or Pilots) call her and ask for her deadweight: the reply is 170,000 tonnes. The berth operator asks for her displacement and the reply is 190,000 tonnes.

Pilot and tugs are acquired and the vessel proceeds inwards, but she is sluggish, slow to turn, but eventually berths successfully with the pilots complaining about the

handling capabilities of this awful vessel.

Of course the pilot only asked for four tugs as she was of 190,000 displacement. If, however, he had asked what the vessel's Single Hull Equivalent Tonnage (SHET) was he would probably have ordered six!

SHET = Cargo capacity plus segregated ballast capacity

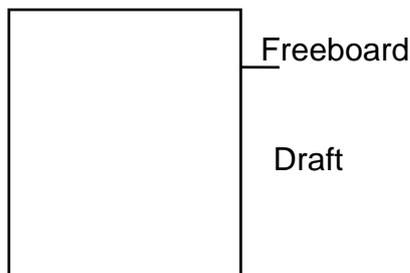
In this instance

170,000 + 40% SBT
68,000

SHET 238,000 - just a bit bigger!!

I have had several experiences recently of these "misunderstandings" on ship size. It is my view that it is only a question of time before a "misunderstanding" becomes an out of control disaster.

The problem is not just of tonnage 'per se', but of freeboard too. Because the vessel has increased reserve of buoyancy by virtue of the empty ballast spaces she has an increased freeboard and therefore "windage".



SBT vessels have a freeboard that is about 2 metres greater than non SBT vessels i.e a 9 % increase.

The increased windage calls for a much higher tug power assuming there is a wind of sorts (if things start going wrong there will of course be a wind and probably stronger than anyone thought at first).

There are ships around now of 350,000 deadweight with segregated ballast. These ships have an equivalent tonnage of some 470,000 tonnes or more depending on ballast capacity. That, I would suggest, is a difference that is significant to all involved in her operations.

As an example the 1991 built Al Awdah is a new SBT 285,000 DWT vessel with similar dimensions to the much older 1975 built Lampas of 312,000 DWT vessel. Clearly the Lampas is bigger, but their Single Hull Equivalent Tonnages are:

AL Awdah	Lampas
385,000	312,000

Now of course we see that the Al Awdah is very much bigger. She also has 2 metres greater freeboard and 2 metres greater depth, but the drafts are the same.

It should be remembered, of course, in defence of Pilots that they may not be familiar with the intricacies of tanker tonnages and SBT categories. The Port Authority themselves may not be familiar with such vagaries of tonnage. The berth operator should understand, but may not feel the need to communicate to the port on the subject.

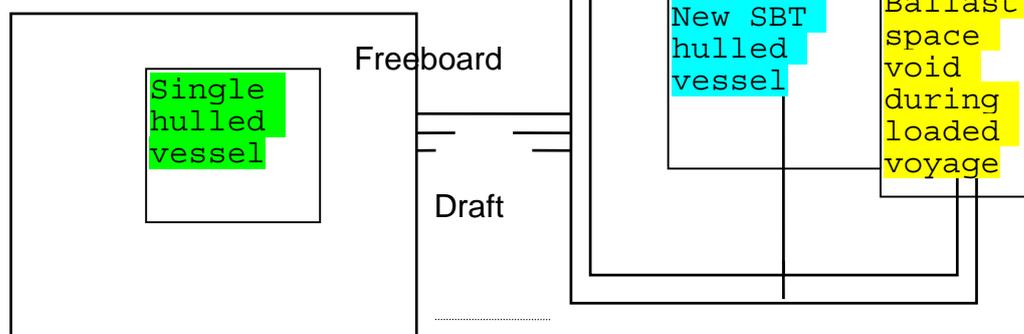
A further problem generated by the increased freeboard is the capacity of the loading arms to accept the vessel in 'light' condition at high water. In many cases disconnection will be necessary as the freeboard may be too great even with ballast on board.

It may be that a completely new formula is needed to develop the answer to provide everyone involved with the information they need to have a reasonable understanding of the size, type and characteristics of the vessel under consideration.

Typical cross sections of equivalent vessels under the new and the old system are shown below:

Hopefully this note will bring an awareness and discussion to the subject which will allow a better understanding of the tonnages.

Note the increased Freeboard.....



Beam = 44 metres

Beam = 46 metres

The draft may be the same and the length shorter or longer depending on the precise design parameters.

The overall dimensions of ships have changed over the years to shorter length with slightly greater beams and marginally shallower drafts but the tonnages and real sizes are more difficult to assess with the double hulls now coming into service.

It will not be sufficient, of course, to merely ask if the vessel has SBT. She may only have the Fore and Aft peak tanks as SBT. That in itself will not increase her Single Hull Equivalent Tonnage as that was always part of a single hull design.

If any readers have any views on the matter and wish to discuss the perceived problem (or the lack of it) we are always available.

Contrarily, a vessel with CBT has a decrease in Deadweight as she carries ballast within the original cargo spaces, but no longer carries cargo in those spaces.

C F Spencer & Co Ltd