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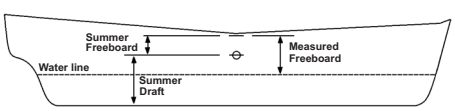
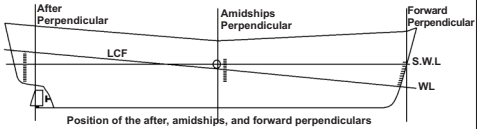
DRAFT SURVEY FORMULAE



Draft = (Summer Freeboard + Summer Draft) - Measured Freeboard



Position of the after, amidships, and forward perpendiculars

CORRECTION TO THE PERPENDICULARS

$$\text{Correction} = \text{Distance of draft marks from End perpendicular} \times \frac{\text{Trim read from draft marks}}{\text{Distance between draft marks}}$$

$$\text{Correction} = \text{Distance of draft marks from Amidships line} \times \frac{\text{Trim at perpendiculars}}{\text{Length between Perpendiculars}}$$

CORRECTION FOR HULL DEFORMATION

$$\text{Correction} = \frac{\text{Forward draft} + \text{After draft} + (6 \times \text{Amidships draft})}{8}$$

Note:

Known as the 'Mean of Means draft' providing a more accurate mean draft when the ship is hogged or sagged.

CORRECTIONS FOR TRIM

FIRST TRIM CORRECTION (or 'Layer' correction):

$$\text{Correction (tonnes)} = \frac{\text{Trim (cms)} \times \text{LCF (metres)} \times \text{TPC}}{\text{LBP (metres)}}$$

Note:

Where LCF means distance of the LCF from Amidships and LBP is the length between perpendiculars. To apply this correction, when the LCF is in the same direction from amidships as the deepest draft it is added to the displacement and when it is in the opposite direction it is subtracted.

SECOND TRIM CORRECTION:

$$\text{Correction (tonnes)} = \frac{(\text{Trim in metres})^2 \times 50}{\text{LBP (metres)}} \times \frac{dM}{dZ}$$

Note:

Where $\frac{dM}{dZ}$

is the difference between the MCT for a draft of 50 cm greater than the corrected mean draft and 50 cm less than the corrected mean draft. This correction is always added to the displacement.

CORRECTION FOR HEEL

$$\text{Correction (tonnes)} = 6 \times (T1 - T2) \times (D1 - D2)$$

Note:

Where T1 is the TPC for the deepest draft amidships (D1) measured in metres and T2 is the TPC for the shallower draft amidships (D2) measured in metres. The correction is always added to the displacement because the effect of heel is to increase the waterplane area and so lift the ship out of the water.

CORRECTION OF DISPLACEMENT FOR DENSITY

$$\text{True Displacement} = \text{Scale displacement} \times \frac{\text{Density of dock water}}{\text{Density used for the displacement scale}}$$

SOURCE: NAUTICAL INSTITUTE

DRAFT SURVEY CALCULATION FORMAT

SHIP: _____ Flag: _____ Date: _____

Deadweight: _____ Commodity: _____ Time: _____

Summer Draft: _____ Survey: ___ Initial / Final Hatches: _____

Weather Conditions (Wind / Swell): _____

LDM =	dF =	dMs =	DA =
Drafts	Forward	Midship	Aft
Port			
Starboard			
Mean			
Correction			
Corrected Draft			

Draft Fore _____ Apparent Trim _____

Draft Aft _____

Fore and Aft Mean _____ Mean of Means _____

Mean of Mean of Means _____

Draft correction for Hull deformation: Forward draft + Aft draft + (6 x Amidships draft) div. by 8

Trim Corrections

$$\frac{100 \times \text{Trim} \times \text{L.C.F.} \times \text{T.P.C.}}{\text{L.B.P.}}$$

Trim = _____

L.C.F. = _____

T.P.C. = _____

L.B.P. = _____

$$\frac{50 \times \text{Trim}^2 \times \text{Diff (MCT)}}{\text{L.B.P.}} \quad \text{(Always +)}$$

MCT 2 = _____

MCT 1 = _____

Diff. = _____

Trim² = _____

Deductions

Ballast _____

Fresh Water _____

Fuel Oil _____

Diesel Oil _____

Lube Oil _____

_____

Total _____

Light Ship _____

Declared Constant _____

Displacement _____

.....X..... _____

Displacement for draft _____

Total Trim Correction _____

Corrected Displacement _____

Density Correction _____

Gross Displacement _____

Deductions _____

Nett Displacement _____

_____

_____

_____

_____

Shore figure _____

Difference _____ MT _____ %

REMARKS:

Protea Printers