Basic Detail Report



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Title

Quote for a Ralston Stability Indicator

Date 1961

Medium

paper

Dimensions Overall: 254 × 203 mm

Name

Quote

History

The Ralston ship's stability and trim indicator was used as

an analogue method of distributing a ship's cargo mass to ensure correct fore and aft trim and transverse stability of the vessel before it left for a passage at sea. The indicator was a clever, practical system that involved simply balancing weights on a plate over a set of twin scales built into a handy case, and specifically designed or formatted for each individual vessel. A plate depicting a schematic profile view of the vessel with its tanks and cargo spaces defined in outline is located on the surface, and the plate can be balanced fore and aft or vertically as separate actions. Weights for the cargo are placed in their location, and any water/fuel/ballast or waste tanks are able to be included or excluded depending on their fill or empty state. Using two sets of levers to raise the plate, it balances either fore and aft or vertically, but not at the same time. Slides parallel to either the vertical or the horizontal axis then locate where the centre of gravity is in either direction. If the centre of gravity is too far aft or forward in the horizontal direction, adjustments to the loading or ballasting can be made until it is an acceptable position. The vertical scale shows the GM or metacentric height for the loaded condition. This is a measure of the ship's stability that relates to the method used to calculate it from a set of plans, where the vertical distance between the actual centre of gravity and the vertical point above the heeled centre of buoyancy that is on the ship's heeled centreline, which is known as the metacentre. GM or metacentric height is a key indicator of a ship' s stability and roll characteristics, and understanding this is vital to a ship's safety at sea. If the GM is insufficient for a safe operation, then the load or ballasting can be adjusted to correct this.