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Designation: F 1808 – 97a (Reapproved 2002)

An American National Standard

Standard Guide for Weight Control Technical Requirements for Surface Ships[1]

This standard is issued under the fixed designation F 1808; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides recommended weight control technical requirements for surface ships and discusses different types of weight estimates, reports, and weight control procedures. It contains a weight classification that will assist in achieving uniformity by standardizing the weight-reporting system.

1.2 This guide is applicable to ships designed and constructed in inch-pound units of measurement and to ships designed and constructed in SI units of measurement. Whenever inch-pound units are shown or referred to in the text, or in example formats included in this guide, it is to be understood that corresponding SI units may be substituted if applicable to a ship designed and constructed in SI units, provided that whichever system is used, it is consistently used in all weight control reporting documentation for the ship.

2. Referenced Documents

2.1 *ASTM Standards:*

F 1321 Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel[2]

F 1332 Practice for Use of SI (Metric) Units in Maritime Applications (Committee F25 Supplement to IEEE/ASTM-SI-10)[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *agreed weight and center of gravity estimate*, *n*—an estimate of light ship weight and centers of gravity data, mutually agreed upon between the owner and the shipbuilder shortly after award of the shipbuilding contract, based on the ship design information, for example, specifications, drawings, and so forth, available at the time of award.

3.1.2 *as-built weight and center of gravity estimate*, *n*—a detailed final estimate of light ship weight and centers of gravity data, adjusted for inclining experiment results, reflecting the as-built ship including the net effect of contract modifications.

3.1.3 *center of gravity*, *n*—the point through which the resultant of all gravitational forces on a ship or a component passes. The location, a balance point, at which the entire weight of a ship may be considered to be concentrated.

3.1.4 *deadweight*, *n*—the total carrying capacity of a ship including weight of cargo, fuel, lubricating oil, fresh water in tanks, stores, passengers and baggage, and crew and their effects.

3.1.5 *inclining experiment*, *n*—a procedure performed on a completed, or almost completed, ship to establish experimentally the light ship values of the displacement and the vertical, longitudinal, and transverse positions of its center of gravity (see Guide F 1321 for detailed procedures).

3.1.6 *independent weight and center of gravity estimate*, *n*—the estimate of light ship weight and centers of gravity performed by the shipbuilder shortly after award of the shipbuilding contract based on the ship design information available at the time of award. When compared with the owner's estimate and upon resolution of differences, an agreed upon weight and center of gravity estimate will result.

3.1.7 *light ship weight*, *n*—the weight of the ship with all its equipment and outfit, including permanent (fixed) solid or liquid ballast, spare parts that are carried on board, water in boilers at operating levels, machinery including Marine Sanitation Device units in working condition, lubricating oil in all machinery, but not in storage tanks, and liquids in all piping systems.

3.1.8 *longitudinal center of gravity (LCG)*, *n*—the point through which the gravitational forces on a ship pass, measured longitudinally from amidships, measured from the forward perpendicular, or in some cases, measured from the aft perpendicular.

3.1.9 *transverse center of gravity (TCG)*, *n*—the point through which the gravitational forces on a ship pass, measured transversely, port or starboard, from the ship's centerline.

[1] This guide is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.07 on General Requirements.

Current edition approved Nov. 10, 1997. Published November 1998. Originally approved in 1998. Last previous edition approved in 1998 as F 1808 – 97a.

[2] *Annual Book of ASTM Standards*, Vol 01.07.

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