

# APPENDIX 10

## STABILITY INFORMATION BOOK

1. It is recommended that the stability information provided for the master should comprise only the minimum necessary to enable him to assess the stability of the vessel in any condition of loading.

In this regard, it is considered that the most direct method of assessing both intact and damaged stability is through the use of critical KG(f) data, which shall comprise curves of allowable KG(f) vs draught over the range of operational trims.

Where an owner wishes, critical GM(f) curves may be used as an alternative to KG(f) data however, the latter format is strongly recommended for ease of presentation and use.

2. The information, which should be in metric units where appropriate, should comprise:

.1 The ship's name, official number, port of registry, gross and net tonnages, principal dimensions, displacement, deadweight, draught to the summer load line and subdivision load lines and the standard of survivability. Any operational limitations imposed due to stability considerations should also be stated e.g. Significant Wave Height, in the case of ro-ro passenger ships.

.2 A profile view and plan views of the ship drawn to scale showing the mid-length position, the names of all compartments, tanks, storerooms, crew and passenger accommodation spaces. Any permanent ballast should also be shown on this plan.

.3 A table showing the capacity and centre of gravity (longitudinally and vertically) of every compartment available for the carriage of cargo, fuel, stores, feed water, domestic water or water ballast. In the case of a vehicle ferry, the vertical centre of gravity of compartments for the carriage of vehicles shall be based on the estimated centres of gravity of the vehicular cargoes and not on the volumetric centres of the compartments.

.4 The estimated total weight of -

(a) passengers and their effects; and

(b) crew and their effects, and the centre of gravity (longitudinally and vertically) of each such total weight. In assessing such centres of gravity passengers and crew shall be assumed to be distributed about the ship in the spaces they will normally occupy, including the highest decks to which either or both have access.

.5 The effect on stability of free surface in each tank in which liquids may be carried, including an example to show how the vertical centre of gravity is to be corrected.

.6 A diagram or tabular statement showing the hydrostatic particulars of the ship for a range of mean draughts extending between the waterline representing the deepest load line and the waterline of the ship in the light condition. Where a tabular statement is used, the intervals between draughts shall be sufficiently close to permit accurate interpolation. The information should include:-

- (a) extreme draught,
- (b) extreme displacement,
- (c) height of the transverse metacentre,
- (d) value of the moment to change trim one centimetre,
- (e) longitudinal centre of buoyancy,
- (f) longitudinal centre of floatation.

Where level keel hydrostatics only are included, the following additional information is required in order to correct for trim:-

- (g) TPCm immersion,
- (h) if curves of limiting GM(f) are used, (in preference to limiting KG(f) curves) trimmed KM curves are also to be included,
- (i) an example to show the correction for trim when using level keel hydrostatics.

.7 A diagram or scale showing the load line mark and subdivision load lines, with particulars of the corresponding freeboards. A deadweight scale, including these items, may be provided if the range of deadweight is considered significant for the scale to be of any practical use.

.8 A copy of the report on the inclining test and the calculation of the lightship condition particulars and, where applicable, a copy of any subsequent lightweight survey report carried out in compliance with the regulations. A Lightship "history" page should be included which should be endorsed after subsequent lightweight or inclining test surveys.

.9 The estimated weight and the disposition and centre of gravity of the maximum amount of deck cargo, if appropriate, which the ship may reasonably be expected to carry on an exposed deck.

.10 A "step by step" guide for calculating stability prior to departure as indicated in Appendix 6 of these Instructions.

.11 Instructions to the master, special notes on stability as indicated in Appendix 7 of these Instructions. A statement of the maximum angles of heel due to turning and passenger crowding is also to be included.

.12 The following example loading conditions are to be provided:-

(a) **Light condition.** This should include any permanent ballast detailed on the plan provided in accordance with paragraph 2.2 which is not included as a deadweight item on all loading conditions.

(b) **Service Loading conditions.** Both departure and arrival conditions are to be provided. As a minimum, a departure condition loaded to the deepest subdivision draught is to be included plus the worst condition to satisfy the required criteria (limiting KG), if different. For the purpose of the arrival conditions it is to be assumed that oil fuel, fresh water, consumable stores and the like are reduced to 10 per cent of their capacity. Ballast conditions may be included if considered appropriate. Where special procedures such as partly filling or completely filling particular spaces designated for cargo, fuel, fresh water or other purposes are necessary to maintain adequate stability, instructions as to appropriate procedure in each case are to be provided including the provision of intermediate conditions. This also applies to ballasting to maintain stability.

.13 For each of the loading conditions the following is to be provided:-

(a) a profile diagram of the ship shall be provided drawn to a suitable small scale showing the disposition of all components of the deadweight.

(b) A statement shall be provided showing the lightweight, the disposition and the total weights of components of the deadweight, the displacement, the corresponding positions of the centre of gravity (longitudinal and vertical) together with the free surface correction. The maximum allowable KG for the condition is to be stated together with the margin by which the ship complies. (In the case where the ship is provided with minimum GM(f) curves, the metacentre and metacentric height (GM), the minimum allowable GM(f) and the margin by which the ship complies are to be included in lieu of the comparison with KG(f).)