

APPENDIX 7

SPECIAL NOTES REGARDING STABILITY

1. Stability Information

Compliance with intact stability and damage stability criteria has been investigated and calculations have been carried out for different draughts and trims. The summary of the results are shown as maximum KG(fluid) [minimum GM(fluid)] curves shown on page

WARNING. The KG(fluid) [GM(fluid)] for any load and trim condition MUST always be below [above] the value shown on the corresponding trim curve at the relevant draught in order that intact and damage stability criteria are satisfied. Otherwise excessive heeling may result after damage.

It is important to note that the effect of the position of the vertical centre of gravity of the cargo on the loading condition KG may be considerable.

For this ship, the accepted method of determining the position of the vertical centre of gravity and the vertical moments of weights of vehicles/cargo is as shown on page

This method is to be used at all times when loading conditions calculations are carried out.

Before sailing, the actual loading condition must be calculated. A "step by step" guide for this calculation is given on pages

2. The Dangers of Flooding

Flooding is a constant source of danger to the safe and efficient operation of any ship and has on various occasions caused contamination of fuel, loss of electrical power, loss of engine power and damage to cargo. In addition, flooding has caused fluidisation of cargo, loss of buoyancy and loss of stability which in turn has caused serious listing sometimes leading to capsize and the total loss of the ship. Yet, as is often shown by subsequent investigation of the individual incidents and casualties, these dangers have not been appreciated or they have been underestimated by those on board and therefore not always effectively guarded against.

Flooding can be dangerous and there is a need to be ever vigilant against its occurrence. In particular, it is essential to ensure that 'good seamanship is always exercised regardless of the type of ship or its area of operation. As a consequence it is most strongly recommended that the operational procedures listed below should be adopted, whenever appropriate, on an individual ship basis.

2.1 Before Departure

Ensure that:-

- (a) cargo hatches, access hatches, weathertight doors in exposed positions, internal watertight doors and spurling pipes are effectively closed;
- (b) void spaces are empty of any water resulting from leakage or inadvertent pumping operations;
- (c) the bilge pumping system is in sound working condition; and
- (d) all bilge alarms are fully operational.

2.2 Before Departure, Or As Soon There After As Possible

Ensure that cargo loading doors and loading ramps are effectively closed.

N.B. The operational control of internal watertight doors and the cargo loading doors fitted in the enclosed superstructures of Ro-Ro passenger ferries is subject to the statutory requirements

2.3 During The Voyage, In Good Or Seasonal Weather

Make regular inspections to ensure that:-

- (a) the hatches, doors, and loading ramps referred to above, remain effectively closed and are opened only in accordance with the explicit instructions of the master;
- (b) the bilge's in engine rooms and auxiliary engine rooms, especially if such rooms are normally unmanned, are free of water;
- (c) the bilge's in the cargo holds are free of water;
- (d) the sea-inlet valves and sea-water circulating systems are in sound condition; and
- (e) the vehicle spaces in Ro-Ro ships are free of water.

2.4 During The Voyage, When Heavy Weather Is Expected

- (a) Inspect the items referred to in subparagraph 2.3(a) to confirm they are effectively closed; and

(b) where necessary, and provided this can be carried out without introducing other risks, close or protect ventilators and outlets to air pipes, particularly those to fuel oil tanks.

2.5 During The Voyage, In Heavy Weather

Provided it is safe and practicable to do so, make frequent inspections of:-

- (a) unmanned engine rooms and auxiliary engine rooms;
- (b) vehicle spaces in Ro-Ro ships;
- (c) the fuel oil service tanks for the presence of water; and
- (d) void spaces for the presence of water.

2.6 Whilst adoption of the procedures described in paragraph 2.3 above will not necessarily prevent a ship from ever being flooded they should at least greatly reduce the risk of a dangerous flooding situation arising by permitting early corrective action to be taken. "Check-off lists" would prove most valuable in ensuring the systematic application of the procedures listed above.

3. **Stability and Freeboard During Loading and Unloading**

The masters attention is drawn to the stability and freeboards required to be complied with during the process of loading and unloading in order that this may be carried out safely: pages refer.

4. **Geared Valves**

A list of valves essential to maintain the integrity of watertight subdivision or to effect crossflooding are detailed on the damage control plan, which should be studied by all concerned.

5. **Closing of Openings in Hulls and in Watertight Bulkheads**

5.1 Watertight doors

The watertight doors are to be kept closed at sea except those which are allowed to be opened in accordance with the Operational Instructions for the control of such doors. All concerned should be familiar with these instructions and the categorisation of all doors. Compliance with the intact and damage stability criteria assume that all watertight doors are closed. In case of damage therefore, **all** the watertight doors **MUST** be closed immediately.

5.2 Portable Plates, Manholes and Hatches

All portable plates, manholes and hatches serving spaces below the main deck (see manhole plan) are to be effectively closed and secured watertight, or weathertight where applicable, before the ship leaves port and to be kept closed during navigation. The times of opening and closing of the applicable closing devices are to be entered in the official log as required by the regulations.

6. **Closing of Openings in Enclosed Superstructures and in Bulkheads above the Bulkhead Deck**

All concerned should be familiar with the Operating Instructions for the closure of these openings. Bow, side and stern doors **MUST** be kept closed during navigation. The KG(fluid) [GM(fluid)] curves have been derived assuming that all such doors are closed.

7. **General Precautions Against Capsizing**

Compliance with the requirements as regards maximum KG(fluid) [minimum GM(fluid)] information shown on page does not ensure immunity against capsizing regardless of the circumstances or absolve the master from his responsibilities. Masters should therefore exercise prudence and good seamanship having regard to the season of the year, weather forecasts and the navigational zone and should take the appropriate action as to speed and course warranted by the prevailing circumstances.

Care should be taken to ensure that the cargo allocated to the ship is capable of being stowed so that compliance with the KG(fluid) [GM(fluid)] requirements can be achieved. If necessary, the amount of cargo should be limited to the extent that ballast weight may be required.

Before a voyage commences, care should be taken to ensure that the cargo and sizeable pieces of equipment have been properly stowed or lashed so as to minimise the possibility of both longitudinal and lateral shifting while at sea, under the effect of acceleration caused by rolling and pitching.

8. **Additional Notes Applicable to the Loading of the Ship**

8.1* Stability Computer

This vessel has on board a stability computer which carries out calculations of loading conditions by utilising the method and particular option chosen, page refers.

8.2* Actual Loading Conditions - Calculation

This vessel, having a total deadweight of less than 650 tonnes, is exempted from the requirements of Regulation 42 and 43 of the Merchant Shipping (Passenger Ship Construction: Ships of Classes I, II and II(A)) Regulations 1998.

Consequently, actual loading conditions need not be calculated before each sailing, provided that:-

- (a) The master ensures that the actual loading condition corresponds closely with, or is not inferior to, one of the loading conditions in the booklet.
- (b) A record of the condition number, with which the actual loading condition corresponds, is made in a book specially retained on board for that purpose, i.e. [by completing columns 1 to 5 and 21 to 25 of **Form AFR/72**][or appending the computer printout to the log book with an appropriate note added to the narrative section].
- (c) If any sailing condition does not correspond closely with any of the conditions in this booklet, a calculation of the actual loading condition is to be carried out in accordance with the guidance given on pages

* these paragraphs to be included only if applicable.