



## **The collision bulkhead and a very important valve**

Gard has often noted during condition surveys that there appear to be a lack of awareness of some of the built-in safety features on board ships. This circular draws attention to a valve which may never be used, but is essential if the forepeak tank is punctured.

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Regulations governing the collision bulkhead SOLAS, The International Convention for the Safety of Life at Sea, requires that ships are fitted with transverse watertight bulkheads to provide the ship with a certain measure of survival capability should the hull be penetrated and the vessel suffering water ingress as a result. The forward bulkhead is called the collision bulkhead and is meant to be a second barrier in a collision resulting in bow plate rupture and water ingress to the forepeak area.

The collision bulkhead must be located not less than  $0.05L$  or 10 metres, whichever is the lesser from the forward perpendicular, and not more than  $0.08L$  or  $0.05L+3$  m, whichever is the greater (SOLAS 2014, Ch II-1, Reg 12.1). The regulations require that the bulkhead is watertight from the bottom of the ship, up to the bulkhead deck. The collision bulkhead may have steps or recesses, but no doors, manholes, access openings, ventilation ducts or other openings can be fitted in the bulkhead below the bulkhead deck. There is only one exception and that is a single pipeline which is allowed to penetrate the bulkhead for the purpose of filling and emptying the forepeak tank.

This pipeline must be fitted with a screw-down type of valve, capable of being operated from above the bulkhead deck. This is commonly achieved by an extended spindle, while newer vessels may be using actuators.<sup>1</sup> The valve chest must be fitted directly on the collision bulkhead inside the forepeak tank. A flag administration may allow the valve to be fitted on the after side of the bulkhead, if the valve is readily accessible in all conditions and the space is not a cargo space. The valve must be of steel, bronze or other approved ductile materials, ordinary cast iron is not an approved material in this context.

Observations and advice The purpose of the valve, and thus the reason for the strict regulations, is to ensure that sea water cannot flow aft into the rest of the vessel if the bow plating in the forepeak area of the ship is breached. During condition surveys of older vessels we have seen that:

- On board personnel are not aware of the existence of the valve or its purpose.
- The extended spindle has been found defunct or disconnected, at times partly due to heavy corrosion within the forepeak tank.
- The extended valve spindle cannot be located above deck, within the forecastle area, as it is covered with stores, hawsers, wire slings, spare parts etc.
- It is impossible to see if the valve is open or closed.
- When testing the valve by the extended spindle, it has been found stuck in an open position and inoperative.

Most vessels will not be involved in a collision and may never have to depend on the valve being able to close the pipeline to the forepeak tank. Regardless of that, a ship's built-in safety features must be well maintained and be fully familiar to the people on board.

It is therefore important to ensure that the extended spindle is in good condition, that the valve handle is well marked and readily accessible, and regularly operate it so that the valve handle is well marked and readily accessible, and regularly operate it to avoid "freezing".

<sup>1</sup> Note that this circular is not addressing valves operated by actuators, only those operated by manual, mechanical means.