Igorova promišljanja (56) – Igor’s Reflections

Ethics and Economy in Ship Design

Summary

In designing a merchant ship, as one of the main criterion appears to be: lowest building costs and highest yield for a given deadweight and speed. The design of a ship may also influence the quality of transport, the state of transported goods. The safety of ship, the safety of life at sea, however, is the most important criterion.

Ratio between deadweight and displacement $DW/\Delta$ may be considered as a measure of economical efficiency of a ship: the income depending on deadweight and expenses on displacement respectively. Accordingly the ship designer is endeavouring to increase the ratio $DW/\Delta$ for a given ship by reducing the lightweight $LS$; equation being: $DW + LS = \Delta$. Nevertheless specific reductions of the lightweight $LS$ should not affect the safety of ship. And just this aim represents constant challenge to a ship designer. Lost lives, lost ships and goods in 20th century only, put also question of ethics in ship design.

This and next Reflections expose and consider some of the dilemmas involved.

Ship cargo gear, as deck cranes, nowadays, may be considered anachronistic, while loading/unloading operation should rely on port/terminal facilities. Some of the disadvantages of ship having their own cargo gear: a) cases, in stormy weather, of crane falling on hatch cover No. 1 and damaging the same, causing penetration of green seas and progressive flooding of the respective cargo hold resulting in extremely quick sinking of the vessel, b) obstruct loading/unloading operations in ports normally equipped with cargo gear, c) cranes are supposed to be regularly maintained in the difficult seaway conditions, involving one or more professionals permanent onboard to maintain and operate them, d) influences ship electrical balance, increasing capacity of the same, e) obstructs visibility from the wheelhouse, endangering navigation, f) increases lightweight $LS$ and displacement $\Delta$, reduces ratio $DW/\Delta$, increases propulsion power and fuel consumption, g) raises centre of gravity $KG$ and reduces stability, h) increases ship’s price by some 10 percent, or even more, depending on the capacity.

Consequently, due to the disadvantages and perils caused by shipboard cargo gear, it would be reasonable to specially consider and regulate its installation as subject of approval by the competent maritime authorities.