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## Early-design issues of a gas propelled escort tug

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Tethered escort of ships is performed by specially designed tugs linked by a tow-line to a strong point aft of the assisted ship. In fact, the tug is called to control the course and speed of the assisted ship in an emergency situation), so reducing the risk of grounding or collision. A substantial number of studies about ship casualties shows the grounding as the predominant accident when the ship is approaching the harbour or narrow fairways. In order to take part in escort operations, a tug must be provided with the additional service notation escort tug, which confirms its specific capabilities in accordance with particular stability criteria that will be harmonised by International Maritime Organisation from 2020. In case the tug should be propelled with Liquefied Natural Gas, then dedicated issues related to containment system should be solved. Through this paper, an overview will be given upon the possible escort operations that an escort tug could face during his operational life, together with the possible types/configurations of tugs that can be used for this kind of operations. Moreover an example will be given on the determination of escort performances by means of a self developed code on a sample tug.

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