

Transport Safety Investigation Bureau
Safety Flyer – 2019/02

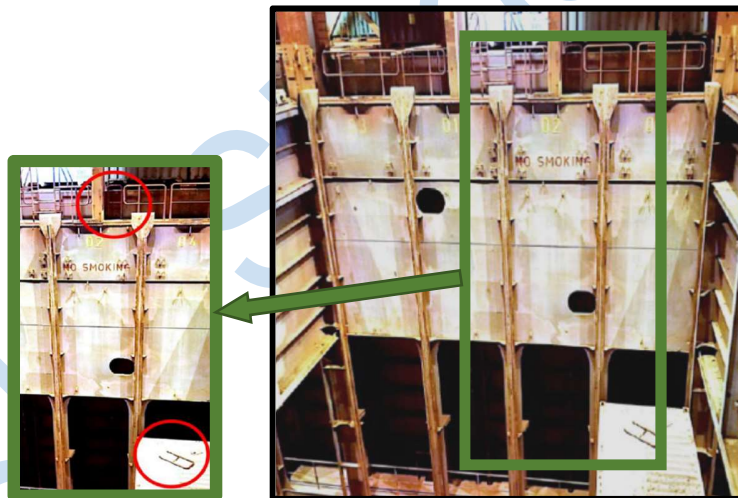
The importance of ensuring proper inspection and maintenance regime

Aim

1. This Safety Flyer¹ is issued with the intention of raising awareness on the importance of carrying out comprehensive inspection of safety barriers such as railings, and gratings, timely preventive maintenance and implementing adequate safeguards in place to ensure safety of personnel on board ships.

Recent Occurrences

2. Preliminary findings from a marine casualty resulting in a stevedore being fatally injured by falling into the cargo hold of a container ship, revealed that a safety railing, which was in poor condition² and badly corroded, could have contributed to the fall of the stevedore through a height of about 20 metres. Although the corroded safety railing had been identified to be one of the tasks to be carried out on board, there were no safeguards or warning signs put in place to warn personnel in the vicinity of its condition.



¹ The contents contained in the flyer are based on prima-facie evidence available at the time of publishing and do not intend to undermine or bias the investigation findings that may be published at a later date.

² The vessel safe management had been taken over from another company's management less than one month prior.

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Picture 1: Closer examination of the railing revealed severe corrosion (metallurgy thinning) at the bottom joints

3. In a separate incident, a crew member of a container ship, fell from a height of almost 20 metres, when the base plate of the crane cabin he had just entered in, gave way, and he succumbed to his injuries at the hospital.
4. Preliminary findings revealed that the base plate was severely corroded. Although the company's planned maintenance system covered inspection of cranes, the corrosion of the base plate had not been detected .



Picture 2: Photograph of the base plate of the crane cabin taken after the accident

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Corrosion fatigue on board ships

5. Most forms of corrosion on board ships occurs due to oxidation, which implies the presence of oxygen or oxidisers, for the metallic reaction to form rust.
6. Atmospheric conditions at sea, typically accelerates this corrosion and the severity is commonly caused by airborne (sea) salt spray, temperature and moisture. Generally, moisture when combined with elevated temperatures and salt intensifies the corrosion process.
7. In spite of the requirement for steel to be galvanized when used for shipbuilding, comprehensive preventive measures for inspections and maintenance form the crucial safeguard against deterioration of the metal's strength and thickness integrity.

Recommended practices

8. A comprehensive inspection regime of areas which could pose a threat to the safety of personnel should be in place, so as to facilitate appropriate intervention and priority for carrying out appropriate repairs in a timely manner.
9. Safety barriers / gratings are meant to protect personnel from potential hazards, such as prevention of falling from height. Where safety barriers / gratings are found to be corroded such that their main role of providing functions could be compromised and pose a threat to personnel, shipboard staff should take appropriate mitigating measures by putting up warning signs and cordoning off such areas to the extent practicable and make such observations known to the company.
10. Inspections of areas which are covered by anti-slip mats or any other similar concealments of metallic surfaces, should be carried out in detail especially where the chance of moisture being trapped is high.