Mooring Line Care and Maintenance

Introduction

Recently the Club has experienced two large claims for injuries sustained by linesmen and crew due to rope mooring lines parting and striking personnel in the vicinity. In the first incident a mooring line parted and struck two linesmen who were on the wharf adjacent to the hull. It would seem that the mooring line was worn at a point where it regularly rubbed against a chine on the ships hull whilst in use. The rope was worn down to such a degree that it failed catastrophically when being used to heave the vessel into position. The second incident involved another rope mooring breaking resulting in serious head arm and leg injuries to a crewmember who was standing by in the vicinity.

Members, their Masters and crew need to ensure that ropes are cared for, utilised and maintained in line with industry best practice. A planned maintenance system should also be in place ensuring periodic thorough visual inspection of all mooring lines, and that these are replaced promptly when unacceptable damage is found.

Mooring Rope Inspection

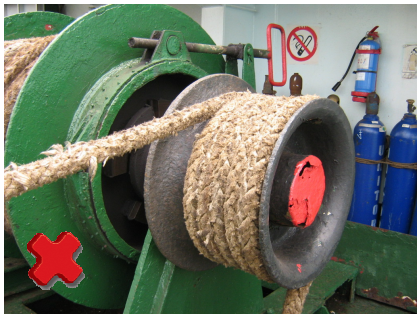
Apart from a visual inspection by crew prior to berthing and periodic inspections by the watchman whilst alongside, mooring ropes should be periodically inspected along their entire length at least once a month.
The wear along the rope should be externally examined and areas of wear and fusing on man made fibre ropes closely checked to assess the integrity of the rope at these points.

Areas of actinic degradation should also be inspected closely to assess the rope's integrity.

Eye splice integrity and eye wear needs to be checked and the strands of the rope opened up to check for internal wear, the pilling of the internal surfaces on a man made fibre rope is an indication of hard use.
Mooring ropes, both loose coils used on the bitts and those on winch drums should be cropped and the eye re-spliced or end for ended once the working end becomes worn.

It is recommended that major damage should not be cropped out from within the rope's length and replaced with a short splice as this will reduce the strength of the rope.

If there is any doubt as to the strength or integrity of a rope then it should be replaced.



Mooring Wire Inspection

Again, apart from visual inspection prior to use, wire ropes should be subject to periodic inspection by the watchman whilst the vessel is alongside and periodically examined along their entire length at least once a month.

Discard criteria should be in place for removal of the wire rope from service based on a recognised international standard. Normally the discard criteria are based upon the percentage of the number of individual wires within the rope which are broken within a length equal to a multiple of the diameter of the rope. For example one discard criterion is if more than 10% of the wires in the rope are broken over a length of 10 diameters, then the wire should be discarded. Another is if more than 8% of the wires are broken over a length equal to 6 rope diameters. If the broken wires are concentrated in one strand then the wire discard criterion becomes stricter. If an individual wire within a strand has worn down such that its' diameter has been reduced by, for example, 33%, then it should be considered broken for the sake of evaluating whether to discard the wire rope.

If the wire rope is worn such that the diameter has decreased then it should be discarded. Again various standards specify different limits on allowable loss of rope diameter, stating that the rope should be discarded if between 6 and 10% of the original diameter of the rope has been lost.

Defects which distort the wire rope, such as bird caging, kinking, corrosion, flattening or crush damage should be examined and their effect on the strength of the wire evaluated.

Rope Care and Use

In order to ensure that ropes remain in satisfactory condition and free of damage the following points should be borne in mind by crew members:

- Fibre ropes should not be left exposed to sunlight whilst at sea; they should either be covered or stored below deck.
- Ropes need to be kept clear of the deck to ensure they do no come into contact with any chemicals which may be detrimental to their strength.
- It should be ensured that all mooring rollers are free turning and are free from damage or corrosion on their surfaces which could cause rope wear.
- Ropes should be stored clear of sources of heat.
- Winch drum ends, bollards and Panama leads need to be free of damage or rust which could cause rope wear.
- Ropes should not be surged on winch drum ends or slacked away by rendering; ropes should be walked back so far as possible.
- Sharp angles in the lead of the rope are to be avoided as much as possible. It must be remembered that these may exist in spring lines when the rope runs alongside the hull between the fairlead and the mooring bollard on the wharf.
- Fibre and wire ropes should not be led such that they cross and touch other ropes, be they either fibre or wire, which could lead to wear during the mooring period.
- Wire ropes are to be periodically dressed with an appropriate grease to help maintain their condition.

For further information on this or other Loss Prevention topics please contact the Loss Prevention Department, Steamship Insurance Management Services Ltd.

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