



Snap-Back Zones

Loss Prevention Safety Alert

All mooring lines under tension will stretch, particularly those made from synthetic material. Should the line break, stored energy will be released as it reverts to its original length.

The two ends of the line will recoil or “snap-back” towards and past the points to which they are secured. Anyone standing within the snap-back zone at either end of the line risks serious injury or death.

Of the most commonly used types of synthetic mooring line, polyimide (nylon) rope will stretch the most prior to breaking. Polypropylene and polyester ropes will also elongate significantly, but in general the amount they will stretch before breaking is only two thirds that of polyimide. The degree of elongation of any rope type is likely to be greatest when it is new.

When a synthetic mooring line breaks, the snap-back effect can be extremely powerful and the rope ends may reach a velocity of up to 800 km/h (500 mph) as they recoil.

Longer mooring wires and towing wires will also stretch under tension and will snap-back after breaking, but not to the same extent as synthetic mooring ropes. Although the speed of a wire which parts under tension is less forceful at up to 500 km/h (300 mph), anything in its path will still be struck with considerable force.

If a rope breaks it will typically snap-back towards and past the point to which it is secured, be it mooring bitts, a winch or a tug’s tow hook. The possible area of the snap-back zone of the rope when it recoils will increase in breadth the further it travels from the point of breakage. The end of the broken rope may also recoil past the point to which it is secured to a distance almost equal to the remaining length. It should also be borne in mind that a rope leading around a pedestal roller will fly back in a wide arc as it returns to the point to which it is secured. For this reason it is recommended that once a mooring line has been tensioned as required, it should be stoppered, removed from the pedestal roller and made fast directly to the mooring bitts.

Unlike natural fibre rope or wire, synthetic fibre ropes provide little or no audible warning that they are about to break. Consequently crewmembers should never assume that a line under tension is safe and should always stand well clear of the potential snap-back zones.

To ensure that there is proper supervision, the officer in charge of a mooring party should control and oversee the entire process and should not become physically involved in the operation. This will allow the



officer in charge to order members of the mooring party to move clear if they are seen to be standing within a snap-back zone or the bight of a rope. Similarly, any crewmember observing a colleague in such a situation should warn them immediately to move to a position of safety rather than relying on the officer in charge to do so.

If it is necessary for a crewmember to approach a line under tension and enter a snap-back zone to complete a task, they should do so when the line is under the least amount of tension and spend the absolute minimum time necessary in the danger area, moving clear immediately afterwards. All other persons not directly involved in the mooring operation should be kept well away from the area.

Further information on snap-back zones can be found in Chapter 26 and Annex 26 of the United Kingdom Maritime and Coastguard Agency’s Code of Safe Working Practices for Merchant Seaman.

Members requiring any further guidance are advised to contact the Loss Prevention department.

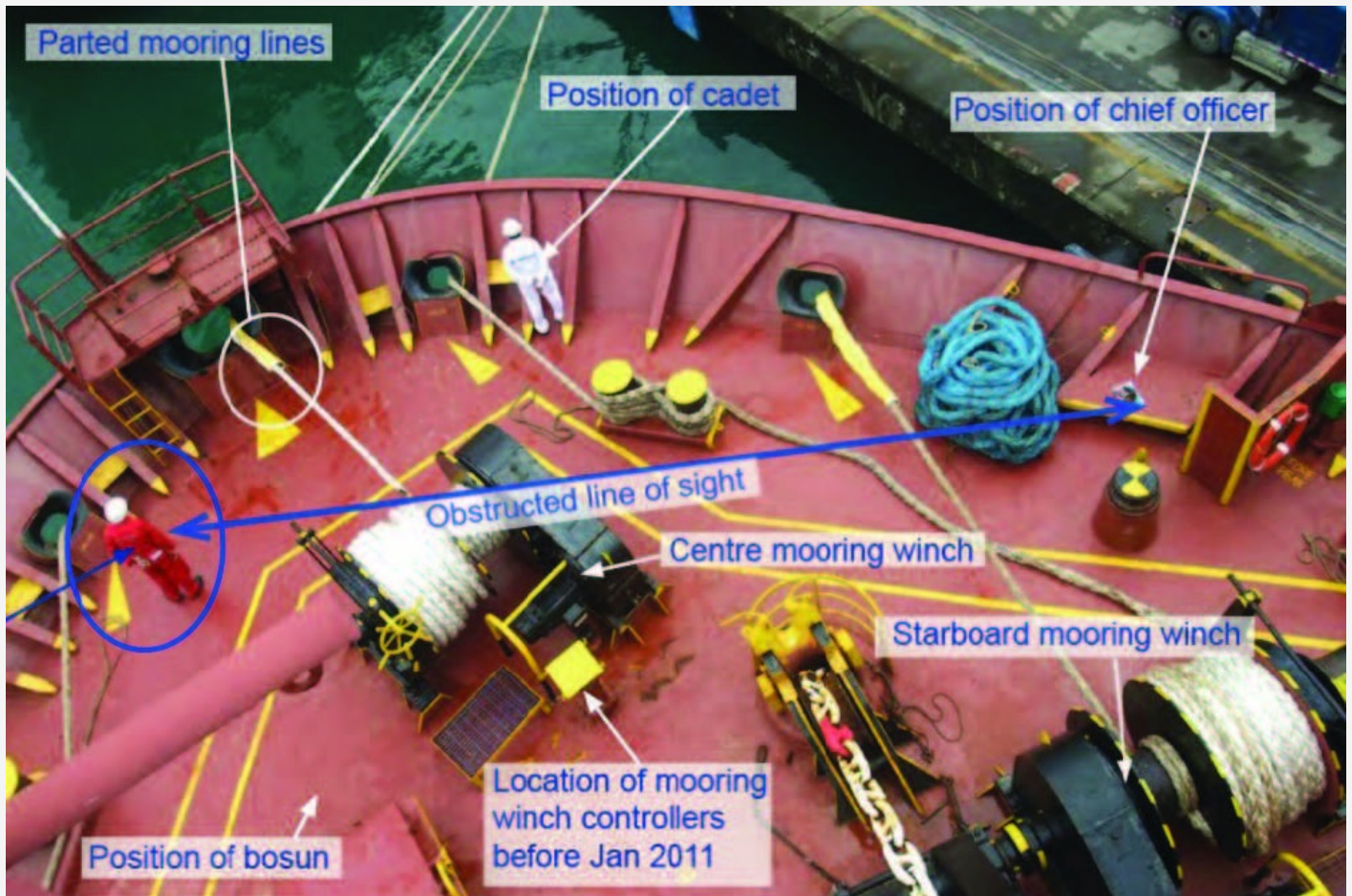


Photo: MAIB Report: MV Freemantle Express — Fatality during mooring operation, Veracruz (Mexico) 15 July 2011 ©Crown Copyright

In this reconstruction the seaman circled in blue was fatally injured when the headline parted as he approached the centre-lead.