

## **FLYER TO THE YACHTING INDUSTRY (04/2023)**

### **Use of synthetic cordage and falls including “man riding” applications**

In recent years, a number of incidents have been reported to the Cayman Islands Shipping Registry (CISR) involving the degradation or failure of synthetic falls and ropes.

One incident resulted in a crew member being seriously injured. CISR undertook a technical investigation of this synthetic rope lifting bridle failure.

#### Summary of events:

A tender with two crew onboard was being recovered to the topmost deck of a large yacht at anchor. While the tender was being lifted, the forward part of the lifting bridle failed, causing the bow of the tender to fall to the water.

The lifting bridle was made up of three synthetic rope “legs” attached to a spreader bar, and to the tender at a single point on the bow and two points at the stern. The date of manufacture of the bridle could not be determined.

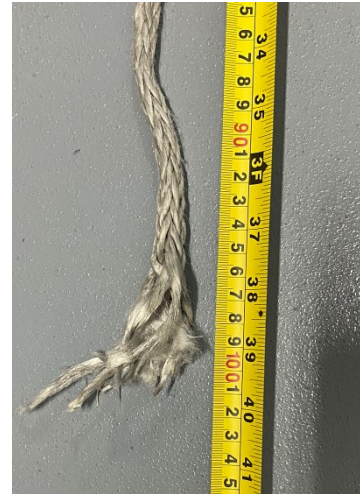
The two crew, who were secured to the lifting hook above the lifting bridle by means of harnesses and fall arrestors, were left suspended alongside the tender. Following the failure of the lifting bridle, the crew members were struck by the upper section of the tender’s single outboard engine. One crew member sustained minor injuries, while the other required evacuation by helicopter to nearby medical facilities.

On examination it was found that the forward leg of the 3-leg lifting bridle had parted roughly at its midpoint.

#### Safety Issues<sup>1</sup>:

**Proper design of lifting bridles:** The design of lifting bridles should be carefully considered by a competent person. Due to the geometry of a lifting bridle, the tensile loads in each leg can vary considerably and it is possible to have a total tensile load in all legs that is greater than the actual load being lifted.

**Synthetic cordage: Supply, maintenance & inspection, replacement:** Synthetic cordage should be sourced from a reputable supplier. The rated load and breaking strain should be documented by



<sup>1</sup> Not all Safety Issues in this flyer were contributory factors in the incident described.

the manufacturer and a copy accompany the cordage. Some synthetic cordage is susceptible to deterioration when exposed to sunlight and harsh environments. Synthetic cordage should be subject to regular inspections and replaced and discarded if there is any sign of deterioration. All synthetic cordage must be replaced at intervals specified by the Recognized Organisation (Class Society) for the yacht. Where these renewal intervals are based on number of operating cycles, records of the same should be maintained and kept onboard as part of the mini ISM system, ISM system, or maintenance records as applicable. Where renewal intervals have not been specified in the applicable rules of a Recognised Organisation or by the manufacturer, the falls should be replaced at intervals not exceeding 24 months.

**Synthetic cordage: Storage:** The storage environment for synthetic cordage can greatly affect the service life of the cordage. Cordage should be stored in a dry environment out of direct sunlight and not subject to extreme temperatures. The manufacturer's recommendations for storage should always be followed and all "new" cordage should be thoroughly inspected before first use if it has been stored for a significant period before use.

**Rigging best practice:** When rigging a lifting bridle and attaching it to the load, consideration should be given to the method of attachment. If shackles are used, these should be properly "seized" or "moused" before the lift to ensure shackle pins do not rotate loose. If hooks are used a suitable method must be used to prevent the hooks detaching at no or low loads.

**Risks associated with "man-riding":** Launching and recovery of tenders must be thoroughly assessed, and only be carried out with the entire system - including cranes, ropes, slings and shackles - having been designed and certified to do so. Even when lifting appliances and loose gear is suitable for "man riding", consideration should be given to whether man riding is "necessary" or simply "easier". Persons should not be subjected to unnecessary risks, even when those risks are assessed as low.

**Man riding when equipment not so rated:** "Man riding" should **never** be undertaken unless the entire system of lifting appliance, slings, falls, and other loose gear has been rated for man riding and subject to regular inspection and test. It is recommended that lifting appliances not rated for man riding are clearly and permanently marked "WARNING – NOT TO BE USED FOR MAN RIDING".