BSAFE

INCIDENT CASE STUDY

No.9 | JULY 2021

FALL OF A HEAVY OBJECT, RESULTING IN INJURY

TWO CREW MEMBERS ON A GENERAL CARGO SHIP WERE INJURED WHEN A SUSPENDED LOAD FELL AND STRUCK THEM. THE SUSPENDED LOAD WAS WIRE ROPE LEGS AND SHACKLES USED TO MOVE THE SHIP'S HATCH COVERS ('THE LIFTING GEAR'), WHICH FELL BECAUSE THE HOIST PARTED AFTER ONE OF THE SHACKLES BECAME SNAGGED I.E. WEDGED ON A COAMING AT THE STORAGE LOCATION.

BOTH CREW MEMBERS WERE STANDING INSIDE THE HAZARDOUS AREA AROUND THE SUSPENDED LOAD, READY TO MANUALLY GUIDE THE LOAD CLEAR OF SNAGGING HAZARDS DURING THE LIFT. THE LIFTING GEAR HAD BEEN STOWED IN THE CARGO HOLD VENTILATION DUCT SPACE, WHERE IT WAS KNOWN TO HAVE SNAGGED BEFORE. THE LIFTING OPERATION HAD NOT BEEN FORMALLY RISK ASSESSED, AND A LIFTING PLAN FOR THE WORK HAD NOT BEEN PRODUCED.

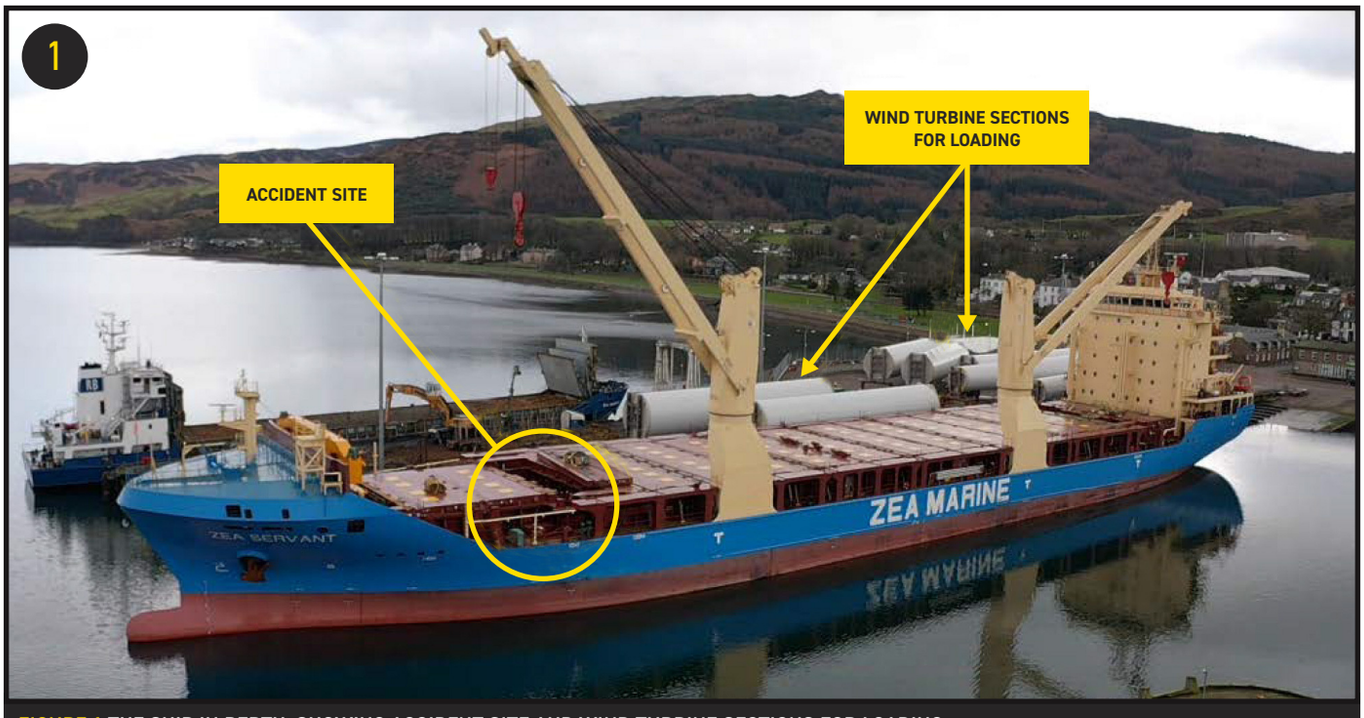

FIGURE 1 THE SHIP IN BERTH, SHOWING ACCIDENT SITE AND WIND TURBINE SECTIONS FOR LOADING.
SOURCE: MARINE ACCIDENT INVESTIGATION BRANCH (MAIB)

WHAT HAPPENED

A 11,000 GT general cargo ship built in 2018, was to load a cargo of wind turbine tower sections **(Figure 1)**. The deck crew, supervised by the chief officer (C/O), began to prepare the ship for cargo loading. This work was halted in the afternoon due to adverse wind conditions, but was scheduled to recommence later in the evening when the weather was expected to improve.

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WHAT HAPPENED (CONTINUED)

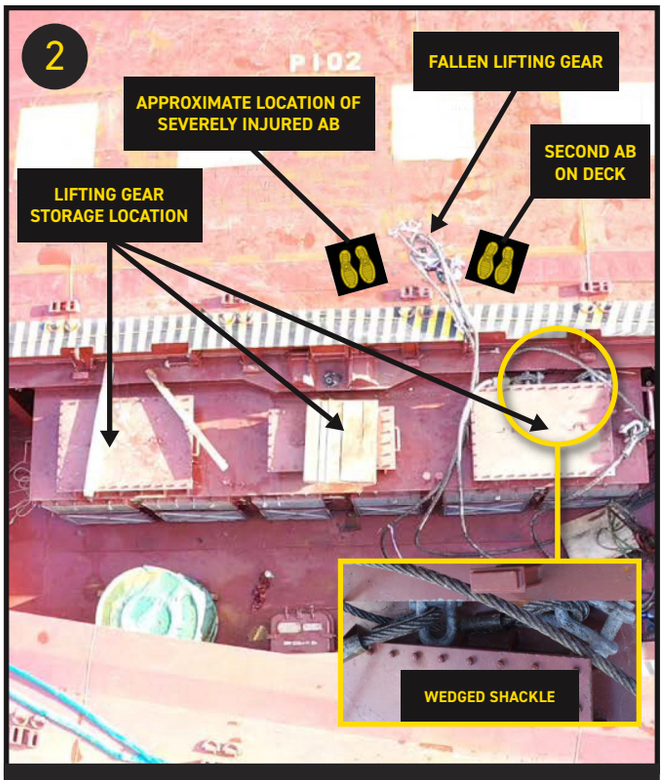

FIGURE 2 VENTILATION DUCT SPACE AND ACCIDENT SITE; INSET: CLOSE-UP OF WEDGED SHACKLE.
SOURCE: MARINE ACCIDENT INVESTIGATION BRANCH (MAIB)

At 2100 the weather had improved. The C/O conducted a safety briefing and took up the position as supervisor, accompanied by the bosun (BSN). The ship's working lights were turned on, illuminating the area where the crew were to work.

Following the safety briefing, one of the able-bodied seamen (A/B) used the ship's forward crane to remove the cargo hold ventilation duct space cover **(Figure 2)**, so that the lifting gear could be retrieved. Two other A/Bs then entered the ventilation duct space and attached the first of two hatch cover lifting gear sets to the crane's hook using a fibre sling **(Figure 3)**. Both A/Bs then climbed out of the space and stood close to the hatch edge ready to guide the load and free any snags as it was lifted.

The hatch cover lifting gear had been stowed on wooden pallets positioned on top of the ventilation duct coamings in the ventilation duct space ever since delivery by the shipbuilder. There was no designated storage space for the lifting gear on board. The lifting gear was made up of two slinging sets; each set weighed 0.6t and consisted of two 17m long, 52-millimetre (mm) diameter, wire rope legs joined together with a master link **(Figure 3)**. Each wire leg had a shackle attached to an eye at the lower end.

Using a radio, the C/O instructed the A/B controlling the crane to commence lifting. After the load had been lifted about 2-3 metres, the gear snagged. The C/O ordered the crane driver to stop hauling and the two A/Bs on deck freed the snag by hand. With the two A/Bs remaining close to the edge of the hatch the C/O ordered the crane driver to start heaving again.

Shortly after the lifting operation recommenced, a shackle at the lower end of the load became snagged on a ventilation trunk coaming **(Figure 2 inset)**. The C/O immediately instructed the crane driver to stop, but at the same time the fibre sling parted and the lifting gear fell to the deck, striking both A/Bs.

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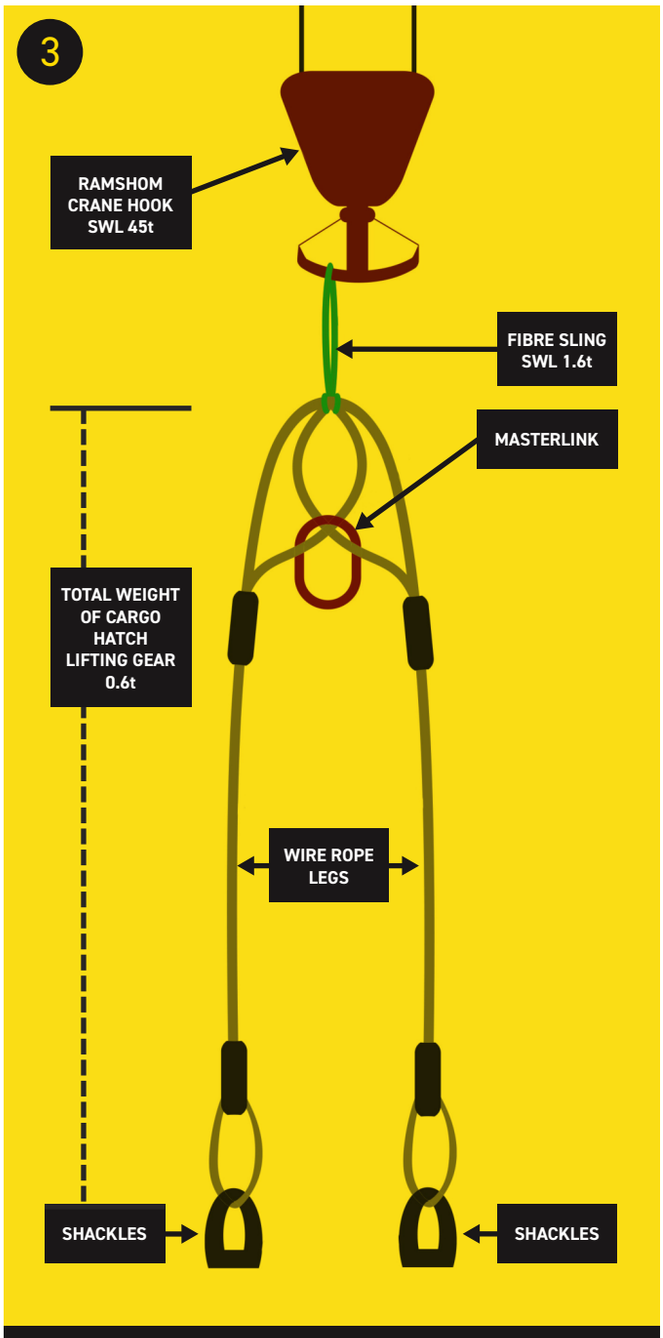

FIGURE 3 CARGO HOLD HATCH COVER LIFTING GEAR – ATTACHMENT TO CRANE HOOK WITH FIBRE SLING.
SOURCE: MARINE ACCIDENT INVESTIGATION BRANCH (MAIB)

WHAT HAPPENED (CONTINUED)

One of the A/Bs suffered a severe head injury while the other suffered a minor hand injury. Other crew members administered first aid and raised the alarm. Ambulance paramedics were soon on the scene and treated both A/Bs before transferring them to a local hospital. The A/B who had suffered the serious head injury was later transferred to a dedicated neurological injury unit, before eventually being repatriated.

After the accident the parted sling **(Figure 4)** and five other similar slings from the ship were examined at an expert testing centre. The report of these tests stated that all six slings would have failed a visual inspection as they were soiled and had illegible identification markings.

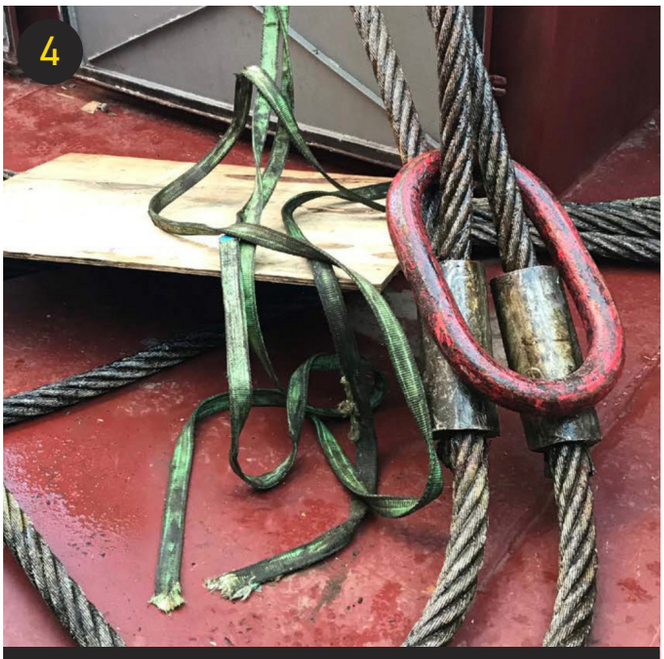

FIGURE 4 BROKEN FIBRE SLING (AFTER THE ACCIDENT).
SOURCE: MARINE ACCIDENT INVESTIGATION BRANCH (MAIB)

LESSONS LEARNED ON NEXT PAGE

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LESSONS LEARNED

THE FOLLOWING LESSONS LEARNED HAVE BEEN IDENTIFIED. THESE ARE BASED ON THE INFORMATION AVAILABLE IN THE INVESTIGATION REPORT AND ARE NOT INTENDED TO APPORTION BLAME ON THE INDIVIDUALS OR COMPANY INVOLVED:

- The operation to hoist the lifting gear was not called to a halt when the A/Bs positioned themselves underneath or close to the suspended load. Any of the crew on deck, including the crane driver, could have stopped the operation, in particular the C/O or the BSN, who were in supervisory roles. Furthermore, the deck preparations had been delayed by weather and there was pressure to prepare the ship for the cargo loading.

- The ship's SMS included a procedure for cargo hold hatch operations, which included the requirements for personnel to maintain a safe distance from the hatch covers when they were being moved, and for lifting equipment to be inspected prior to use. This procedure also detailed the need for a lifting plan and a designated person to be in charge of safety during hatch operations.

  However, the ship's SMS did not contain a risk assessment or a procedure for the stowage and handling of the hatch cover lifting gear, nor any guidance for the conduct of a lifting plan and the identification of fall zones. Had a fall zone assessment been undertaken, it would have been evident that it was unsafe for the crew to position themselves so close to the suspended load.

- Although qualified seafarers, the crew had limited experience with this particular ship, and as there was no procedure to follow they had adopted their own method of carrying out the lifting operation. The crew had used the same method on at least five previous occasions and had experienced similar snagging events. When these had occurred, the deck crew had manually freed the gear after the crane had stopped hauling.

  The previously experienced snags should have acted as a warning and prompt a Near Miss report followed by appropriate corrective actions. Conversely, as the crew were able to resolve the snags without difficulty this might, instead, have inadvertently acted to reinforce their belief that their actions were not unduly hazardous. Previous exposure to risk without consequence in this way can result in a misplaced sense of a situation being safe.

- The ship had not been built with a dedicated storage area for the hatch cover lifting gear. As a result, the crew had devised a local arrangement to store the lifting gear on top of wooden pallets in the duct space which might have appeared appropriate because it was accessible. However, it was an area where there was a significant number of potential snagging hazards, especially for lifting slings with shackles at their ends.

  It is likely that a formal risk assessment process would have identified the cargo hold ventilation duct space as an unsuitable location for the stowage of the lifting gear, and prompted the crew and/or vessel operator to consider alternative options. It is evident that the storage arrangement was not appropriate, and that a more suitable alternative was required.

- The load fell because the synthetic fibre sling used to lift it parted under tension. It was reasonable to use such a fibre sling as its SWL was more than twice the weight of the load being lifted when rigged using a choke hitch. However, the fibre sling in use was in a poor condition, with local damage, soiling and illegible identification markings. It therefore should have been discarded.

CONTACT

For more information on this incident email lossprevention@tindallriley.com

THIS CASE STUDY IS DRAWN FROM THE INVESTIGATION REPORT 11/2020 PUBLISHED BY THE MARINE ACCIDENT INVESTIGATION BRANCH (MAIB) AT:
https://www.gov.uk/maib-reports/fall-of-a-suspended-load-on-general-cargo-vessel-zea-servant-injuring-2-crew