



SIMPLIFIED SAFETY INVESTIGATION REPORT

201604/009

REPORT NO.: 06/2017

April 2017

The Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 prescribe that the sole objective of marine safety investigations carried out in accordance with the regulations, including analysis, conclusions, and recommendations, which either result from them or are part of the process thereof, shall be the prevention of future marine accidents and incidents through the ascertainment of causes, contributing factors and circumstances.

Moreover, it is not the purpose of marine safety investigations carried out in accordance with these regulations to apportion blame or determine civil and criminal liabilities.

NOTE

This report is not written with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The report may therefore be misleading if used for purposes other than the promulgation of safety lessons.

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MV Skysea Golden Era Serious injury to a crew member In the port of Baoshan, Shanghai, China 10 April 2016

Course of events

Skysea Golden Era sailed from Fukuoko, Japan on 08 April 2016. She was on a cruise to China with 1867 passengers on board. The vessel arrived in Baoshan, Shanghai.

One of the engine ratings, a 41 years old Philippine national, who was engaged as mechanic, reported for his usual duty. He held a diploma in mechanical engineering and technical training in a shore-based engineering workshop. The mechanic had previously served as a fitter, a turner, and engine mechanic on passenger ships. He had joined *Skysea Golden Era* on 14 January 2016.

The mechanic was tasked to clean a pump shaft, using a piece of emery cloth. To facilitate the work, the shaft was secured to the chuck of the vessel's lathe, and set to rotate at 500 rpm.

The lathe (Figure 1) was located in the engine-room's workshop, on starboard side, aft of the main engine.



Figure 1: The lathe inside the workshop

At about 1128, the engine ratings, (two engine ratings were also on duty at the time of the accident) found the mechanic arched over the lathe's rotating chuck.

They quickly activated the emergency stop button on the lathe and summoned the ship's medical emergency team.

Medical treatment

The emergency team found the mechanic conscious but in severe pain and bleeding. He had multiple contusions, wounds, and laceration in the face, neck, and upper left arm. The mechanic was given first aid and transferred to a local hospital for further treatment. At the hospital, the injured crew was medically examined. An X-ray and CT scan, however, revealed no fractures or dislocation of the left arm. The laceration and open wounds were cleaned and bandaged. Following several days of treatment, he was signed off the ship and repatriated home.

On board guidance for work on the lathe

The lathe had been fitted on board in 1995. In terms of safety barrier systems, the tool was fitted with automatic disengagement of hand wheels, complying with Czechoslovak standard CSN 20 070 and the relative legislative requirements, applicable at the time.

A 'Hazards Work Details' document displayed in the engine workshop (Figures 2a and 2b), listed a number of precautions which the operator had to observe when using the lathe. Notably, it directed the operator to use the chuck guard and not to hold any (rotating) work with the hands.



Figures 2a and 2b: Instructions and work details

Probable cause¹

The chief engineer reported that the area around the lathe was clean, free of loose material and the platform surface was non-slippery. The artificial lighting was bright enough and the lathe was well maintained and kept in good condition. The safety precautions outlined in the 'Hazards Work Detail' document were observed except for the chuck guard which had never been fitted on the lathe.

Although no engine ratings witnessed the accident, it was probable that either the emery cloth and/or the loose sleeve of the mechanic's overalls were caught in the rotating chuck. The mechanic was then pulled over and held down over the rotating chuck, outside the reach of the emergency stop button (Figures 3a and 3b).

In addition to the lack of a physical barrier around the chuck, the lathe had another

¹ The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties and incidents from occurring in the future.

design problem with the position of the emergency button, which was not within reach of the (trapped and injured) operator.



Figure 3a: Rotating chuck showing overall sleeve & emery cloth entangled on the spindle



Figure 3b: Emergency stop button on the lathe

Fatigue and alcohol

The mechanic reportedly had a rest period of 10 hours and had worked under four hours before the accident happened. Moreover, his behaviour was not suggestive that he was fatigued when he reported for work. Soon after the accident, he was tested for alcohol. The test results were negative. Fatigue and alcohol were therefore not considered to have been contributing factors to this accident.

Perception of risk

The mechanic was qualified and experienced as a fitter, turner and mechanic. It was unlikely that he was oblivious to the hazards associated with working in close proximity of exposed parts of the lathe. He was also aware of the contents of the 'Hazards Work Details' document.

The fact that the lathe was never fitted with a chuck guard, and no untoward accidents had been reported since 1995, the risks of injury must have been perceived to be acceptable, although acknowledged. Indeed, the managers stated that similar lathes had been in operation on board three of their vessels without any previous accidents.

Perception of risk, as distinct from actual levels of risk, is a psychological function which allows individuals to receive and process hazardous information in their work environment and evaluate the degree of risk. It is largely influenced by individual and/or collective work experience which subconsciously attempts to match the working conditions with the past experiences.

Numerous empirical studies analysed the factors that influence the acceptance of risk. Individual common factors featured in multiple studies, including knowledge of previously known risks. Other studies referred to the *risk homeostasis* theory, which explains why people may accept a higher level of risk and adjust (less cautious) behaviour when they do not perceive threat or danger by the circumstances.

These factors likely to have led to a situation where no attempt was made to ever fit the recommended safety guard. Moreover, they had been manifested by the mechanic not seeking other means to mitigate the risks of injury by either clamping the emery cloth and keeping the sleeve's cuffs clear, or polishing the work-piece manually rather than with the use of the lathe.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION²

During the course of the safety investigation, the Company has placed an order to fit a safety guard on the lathe's chuck. Moreover, the operating procedures were amended and the lathe operation and work practices are now included as part of the on board periodical internal safety audit.

RECOMMENDATIONS

Celebrity Cruises Inc. is recommended to:

06/2017_R1 consider fitting an emergency stop button or pedal in a position that can be reached by lathe operators from all positions.

² **Safety actions and recommendations should not create a presumption of blame and / or liability.**

SHIP PARTICULARS

Vessel Name:	<i>Skysea Golden Era</i>
Flag:	Malta
Classification Society:	Lloyd's Register
IMO Number:	9072446
Type:	Passenger
Registered Owner:	Exquisite Marine Ltd.
Managers:	Celebrity Cruises Inc., USA
Construction:	Steel
Length Overall:	251.20 m
Registered Length:	217.06 m
Gross Tonnage:	72458
Minimum Safe Manning:	20
Authorised Cargo:	Not applicable

VOYAGE PARTICULARS

Port of Departure:	Fukuko, Japan
Port of Arrival:	Baoshan, Shanghai, China
Type of Voyage:	International
Cargo Information:	Not applicable
Manning:	822

MARINE OCCURRENCE INFORMATION

Date and Time:	10 April 2016 at 1128 (LT)
Classification of Occurrence:	Serious Marine Casualty
Location of Occurrence:	Baoshan, Shanghai
Place on Board	Engine-room workshop
Injuries / Fatalities:	One serious injury
Damage / Environmental Impact:	None reported
Ship Operation:	Alongside / moored
Voyage Segment:	Arrival
External & Internal Environment:	Light to gentle breeze. Air temperature recorded at 16 °C
Persons on board:	2689