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Publication Date: November 2011

ISBN: 978-1-74251-221-2

Released in accordance with section 25 of the Transport Safety Investigation Act 2003

ATSB TRANSPORT SAFETY REPORT
Marine Occurrence Investigation No. 287
MO-2011-006
Final

Serious crew member injury on board *Spirit of Tasmania I*

17 September 2011

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.

FACTUAL INFORMATION

Spirit of Tasmania I

Spirit of Tasmania I (IMO No. 9158446) is a passenger/ro-ro ship[1] (Figure 1) which was built in 1998. It is one of two sister ships operated by TT-Line Company, Australia, that provide a daily passenger/vehicle service between Devonport, Tasmania, and Melbourne, Victoria.

The ship has an overall length of 194.33 m and a beam of 25.0 m. It can carry a maximum of 1,400 passengers in a variety of cabin and seated accommodation and has 2,565 lane metres of vehicle space.

Propulsive power is provided by four Sulzer medium speed diesel engines that together deliver 42,240 kW. The ship is capable of a service speed of 28.5 knots[2].

The incident

On the morning of 17 September 2011, *Spirit of Tasmania I* berthed at Station Pier, Melbourne, following an overnight voyage from Devonport.

Figure 1: *Spirit of Tasmania I*

1 Designed so that vehicles to be transported are driven on and off the ship under their own power.

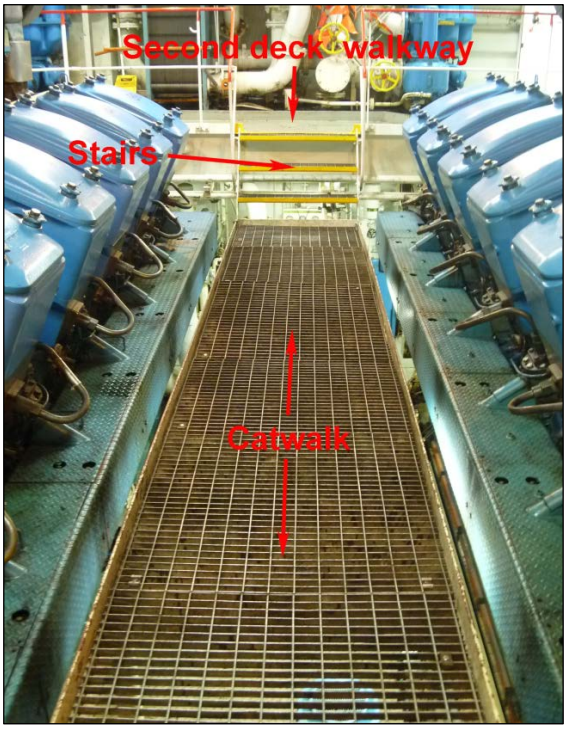
2 One knot, or one nautical mile per hour equals 1.852 km/hr.

At 0615[3], the master rang finished with engines. The engine room staff then shutdown the main engines and associated machinery before going to breakfast.

At about 0800, the engine room staff gathered in the engine control room to discuss the day's work. During their discussions, the chief engineer asked an integrated rating (IR) to get the large portable ventilation fan that was stored on the second deck and take it down to the floor plates. He wanted the fan in place and ready for use the next day to ventilate a void space before it was entered.

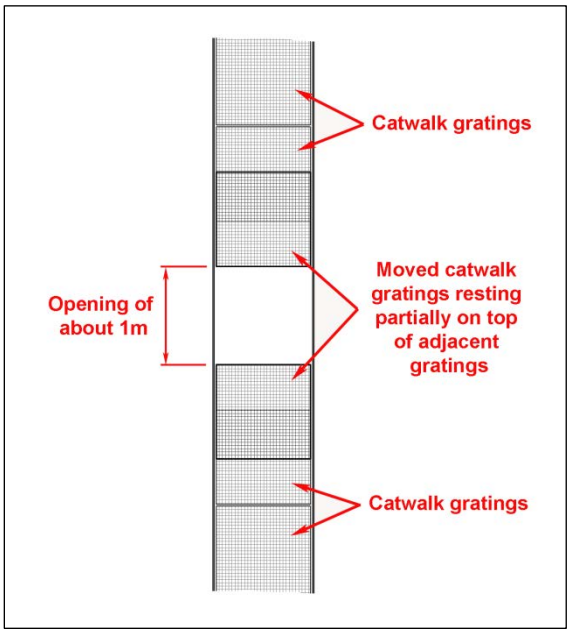
The fan was too large to be carried, so it was usual practice to use the engine room crane to lower it through an opening in one of the second deck catwalks.

Figure 2: Catwalk between main engines 3 and 4



The IR had carried out this task many times before. He went up to the second deck and moved the fan, which was bolted to a trolley, around the second deck walkway to the forward end of main engines 3 and 4 (Figure 2). He then stepped down onto the catwalk in order to move two sections of the catwalk floor grating (each about 1 m x 1 m in size). He lifted one grating and slid it aft, placing it partially on top of the adjacent grating. He then moved forward and lifted a second grating and slid it forward; again placing it partially on top of an adjacent grating. This exposed an opening of about 1 m between the gratings (Figure 3).

Figure 3: Schematic diagram of catwalk gratings



The IR then climbed the three steps up from the catwalk onto the second deck walkway. He stopped for a moment, considering what to do next, and decided to go to the workshop to get a spanner so that he could unbolt the fan from the trolley before lifting it off the trolley with the engine room crane.

At this time, the electrical engineer walked by the forward end of the engines and asked the IR what he was doing. The IR explained that he was lowering the fan to the bottom plates. In response, the electrical engineer told him that it was dangerous to leave the opening in the catwalk without a safety barrier around it.

The electrical engineer told the IR to get a rope, or some barrier tape, to cordon off the area. The electrical engineer then stepped down onto the catwalk to replace what he thought was a single grating. He lifted the forward end of the grating that the IR had moved forward and started to push it aft, back into position.

Then, without warning, the electrical engineer fell through the opening in the catwalk, landing on the deck about 2 m below. He did not recall slipping or feeling the gratings move under his feet.

3 All times referred to in this report are local time, Coordinated Universal Time (UTC) + 10 hours.

Therefore, it is possible that he stepped into the opening as he pushed the grating back into place.

The electrical engineer was shocked by the unexpected fall. His right shoulder and buttock were grazed and badly bruised, his left ring finger was broken and the top of his left middle finger had been amputated. He wrapped his left hand in some clean rags and then climbed the stairs up to the second deck. He instructed the IR to replace the grating and then walked to the engine control room.

When the electrical engineer arrived at the engine control room, he met the first engineer. The first engineer telephoned the ship's medic, who came to the engine control room and provided first aid assistance. The incident was also reported to the master, who advised shore management and local authorities.

At 0920, an ambulance arrived at Station Pier. The electrical engineer was then taken ashore and transported to hospital, where his injuries were treated. He was discharged from hospital the next day.

SAFETY MESSAGE

Working on board a ship comes with some inherent risks, not all of which can be listed on a risk register or covered by a formal job safety/hazard analysis. Therefore, crew members should always take a few moments to survey their surroundings and consider the risks associated with the task they are about to carry out. They should then take steps to minimise those risks.

In this case, if the IR had placed a safety barrier around the catwalk opening, the electrical engineer would not have placed himself in danger. Similarly, if the electrical engineer had thoroughly surveyed the area, he may have determined that two gratings had been moved, not one, and that he risked falling through the opening if he was not careful.

SAFETY ACTION

Whether or not the ATSB identifies safety issues in the course of an investigation, organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this incident.

TT-Line Company

TT-Line Company has advised that the following actions have beeen taken on board both *Spirit of Tasmania I* and *Spirit of Tasmania II*.

- The catwalk gratings have been refitted in their correct positions so that only one grating has to be moved to make an opening for lifting operations.
- All the gratings have been secured to both sides of the catwalk framework, except for one which has been designated for opening. This grating has been fixed in place with hinges on one side to allow ease of access. It has also been painted yellow to distinguish it from the other gratings.
- Permanent retractable safety barriers have been inserted between the forward rails at the top of the catwalk stairs.
- A new procedure has been added to the company's safety management system. This procedure outlines the controls that are necessary when working on, or in the vicinity of, openings in on board structures.

SOURCES AND SUBMISSIONS

Sources of Information

TT-Line Company and *Spirit of Tasmania I*'s master and crew.

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to TT-Line Company, *Spirit of Tasmania I*'s master, electrical engineer and IR.

Submissions were received from TT-Line Company, *Spirit of Tasmania I*'s master, electrical engineer and IR. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.