

Lessons to be learned

Fatal accident when operating vehicle ramps

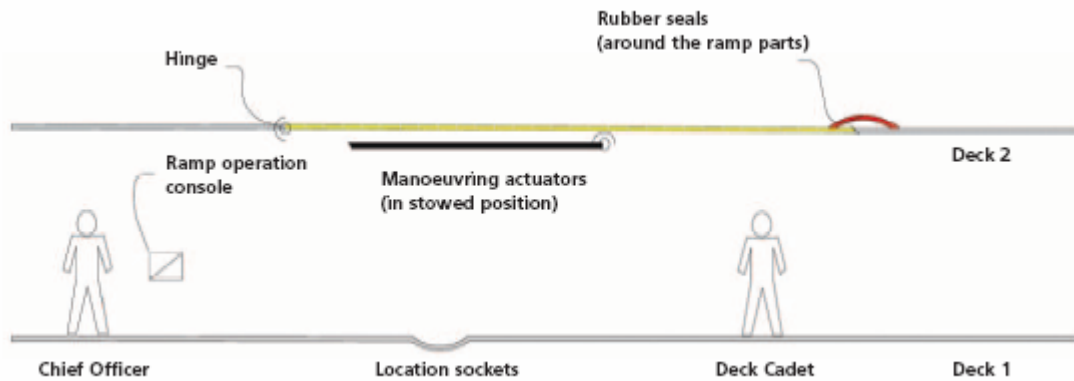


Figure 1: Vehicle ramp onboard a Ro-Ro ship

Course of events

During operation of vehicle ramps on board a Roll-on Roll-off (Ro-Ro) ship in port for unloading, a ramp accidentally swung down on the deck below and fatally injured the Deck Cadet standing underneath.

Extent of damage

One crew member died.

Probable cause

The immediate cause of the casualty was probably that when the rubber seals between the two ramp parts jammed, the hydraulic actuators came out of their position and the ramp accidentally swung down (see fig.1–3).

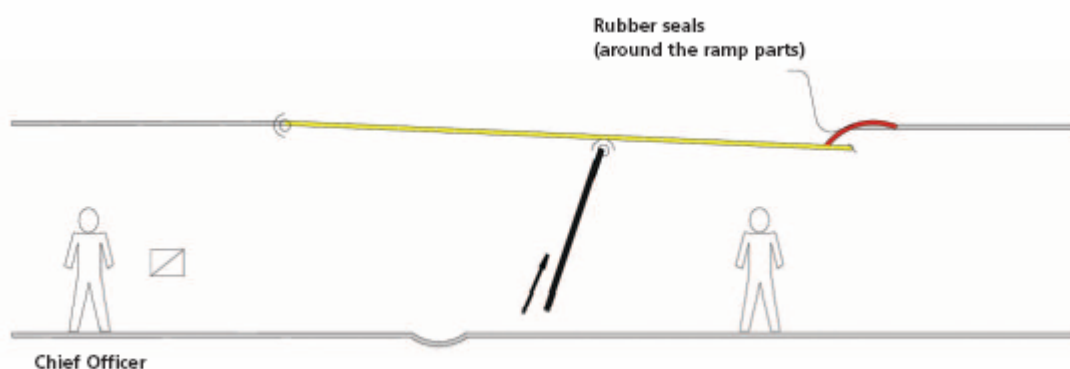


Figure 2: Rubber seals are fitted to all the ends of the ramp parts in order to maintain water and gas tightness between the decks. The rubber seals may have jammed due to slight deformations by use over time. The manoeuvring actuators continued to retract, and come out of their location sockets.

The Chief Officer and the Deck Cadet operated the two ramps at the time of the accident. The adjacent ramp was already lowered but the Chief Officer, standing at the operating control consol, could only see parts of the ramp and the Cadet. The two manoeuvring actuators (ramp legs) were lowered down and placed in the location sockets on the deck below. The Cadet confirmed the manoeuvring actuators in position and that the ramp was ready for lowering.

The Chief Officer started lowering the ramp. It was lowered down about 10 cm when the rubber seal probably jammed. The manoeuvring actuators continued to retract and came out of their location sockets, leaving the ramp hanging on the jammed rubber seal only (see fig.2).

Suddenly, the rubber seal gave way and the ramp fell down on top of the Cadet (see fig.3). When tested later the ramp was working as normal.



Figure 3: After a moment the rubber seal failed resulting in fatal injuries to the Cadet.

Lessons to be learned

- Operating ramps is one of many operations of mechanical equipment and system on board that pose hazards. These hazards should be systematically identified and measures taken. The measures should include evaluation of the equipment, operating procedures and training for use of the equipment as required in the ISM Code.
- Never stand underneath ramps when they are operated or unsecured.
- To avoid similar accidents ensure:
 - Correct sequences of operation in order to reduce the possibility for jamming (of e.g. the rubber seals) and to avoid any obstruction to the operators view.
 - The operator should check that all personnel are cleared off the ramp before any operation.
 - Training of personnel new to the operation.

Source: Det Norske Veritas