

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

FLYER TO THE SHIPPING INDUSTRY

***BEN-MY-CHREE*: COLLAPSE OF THE PASSENGER WALKWAY DUE TO UNINTENDED ENGINE MOVEMENT IN PORT**



After 3 weeks in dry dock, the Isle of Man registered passenger vehicle ferry, *Ben-My-Chree*, undocked on 25 March 2010. Once refloated it was discovered that neither of the two bow thrusters could be started as their main circuit breakers were defective. The crew carried out some temporary repairs to get one bow thruster working and the vessel sailed to her home port of Douglas, Isle of Man and re-entered service.

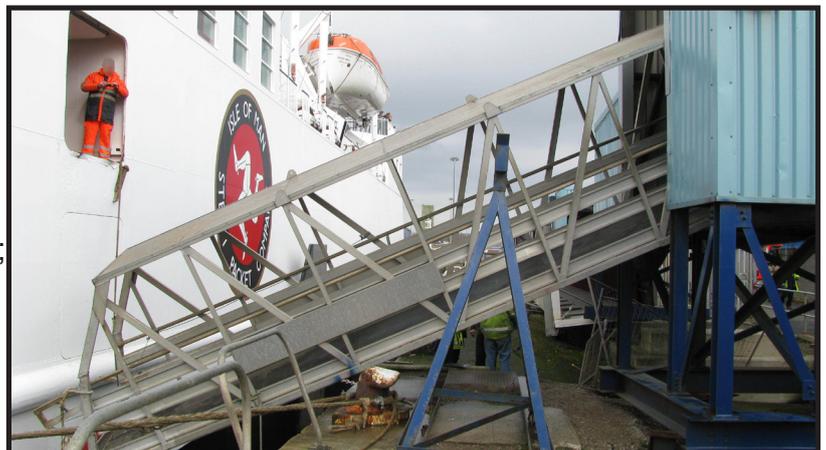
The following afternoon, *Ben-My-Chree* was embarking passengers and loading vehicles at the port of Heysham.

She was moored at the passenger terminal using two head lines and a fore spring forward, and two stern lines and a back spring aft. All the lines except the back spring were kept on autotension at a setting of 25% of the winch rated tension. The weather was calm with light airs.

The chief engineer was monitoring two shore technicians who had boarded the vessel at Heysham to repair the bow thrusters' defective main circuit breakers. The ship was also taking bunkers and the operation, monitored by the third engineer, was nearing completion. The starboard main engine was started by the second engineer at 1338, with the master's permission, in order to run the shaft generator to test the bow thrusters' main circuit breakers. At 1357, the chief officer requested the third engineer for bridge control of main engines as he wished to test controls prior to departure. (The normal practice on board for testing engines was to activate the pitch control levers before the engines were started and observe the pitch response).

The third engineer, who had previously been concentrating on bunkering, transferred controls to the bridge, and the chief officer, not observing that the starboard engine was running, put both engines' pitch control levers to the full ahead position. Within a few seconds, the vessel surged ahead, causing serious damage to the passenger access structure. The foot-passenger walkway detached at both ends and collapsed onto the quayside, and the gangway fell from the vessel's side shell door and was left hanging on a single rope. Fortunately, there were no injuries. Eight passengers were trapped in the gangway compartment of the shore structure and had to be rescued by the fire service.

The Health & Safety Executive (HSE) completed an investigation into the failure of the passenger access structure. The investigation identified that the quay on which the passenger access structure was built had suffered considerable settlement over the years; the walkway was secured to the rest of the structure with only two small bolts at either end; and there were no records of inspections or maintenance



work having been carried out on the structure. The HSE issued several recommendations to Heysham Port, which are relevant to all passenger terminals. These include:

- *An inspection regime, similar to that for bridges, should be adopted with the findings of the inspection recorded and any remedial work identified should be carried out within an appropriate timescale. Particular attention should be given to safety critical parts of the structure. The inspection should be carried out by a competent person.*
- *For the procurement, operation and maintenance of ship to shore structures, reference should be made to the guidance provided in CIRIA Report C518, Safety in Ports, ship to shore linkspans and walkways.*

SAFETY LESSONS

1. Running main propulsion engines while a vessel is alongside is an extremely hazardous activity and must be controlled carefully. Several accidents in the past have resulted from failure of controllable pitch propeller (CPP) control systems resulting in propeller blades being inadvertently set to ahead or astern pitch. Sufficient safeguards must be put in place to mitigate the consequences if the CPP system fails to maintain the neutral position of the propeller blades and, specifically, to uncouple the hazards of engine operation from passenger or vehicle operations.
2. The use of autotension winches on ro-ro ferries significantly reduces the dependence on the crew to maintain the required tension in the mooring lines. However, opposing spring lines held on autotension winches can cause the vessel to 'walk' along the pier and may not restrain the vessel as well as mooring lines secured on bitts or held on winch brakes. Operators should conduct a detailed assessment to consider the balance of these risks and adapt their procedures accordingly.
3. Regular inspection and maintenance of facilities used by passengers is of paramount importance. Guidance is available for the design and construction of passenger access structures in the form of published reports and British Standards. In particular, the following are most relevant:
 - Safety in Ports, Ship to Shore Linkspans and Walkways (CIRIA report C518)
 - Maritime Structures: Code of Practice for the Design of Ro-Ro Ramps, Linkspans and Walkways (BS 6349-8:2007)
 - Maritime Works: Code of Practice for the Design of Quay, Walls, Jetties and Dolphins (BS 6349-2: 2010).
4. It is crucial that crew members communicate openly and do not make assumptions about each others' actions, especially when performing tasks which are not part of the daily routine.

This flyer and the MAIB's investigation report are posted on our website: www.maib.gov.uk

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