SYNOPSIS

At 1146 on 19 July 2005, one of the largest container vessels in the world, the German flagged, 94483 gross tonne *Savannah Express* made heavy contact with a linkspan at 201 berth, Southampton Docks. The vessel had lost astern engine power entering the Upper Swinging Ground where she was due to swing before going alongside.

Minor paintwork damage was sustained to the bulbous bow of the vessel, and she was able to proceed to her berth with the assistance of three tugs. The linkspan suffered extensive damage to its structure, which prevented its further use until major repair work was carried out.

Prior to the collision, two tugs had been secured to *Savannah Express*, one at each end of the vessel. They were unable to take the way off the vessel sufficiently to prevent the collision with the linkspan, partly because the tugs lacked the necessary power, and partly because there was insufficient room for them to manoeuvre. The most effective tugs available, bearing in mind the size of the vessel, its particular requirements and the characteristics of the tugs, were not allocated to *Savannah Express*.

Savannah Express had suffered an engine failure earlier that morning as she approached the Nab Tower and the pilotage boarding area. She anchored and carried out repairs before proceeding to Southampton. The pilot was aware the engine had been turned before leaving the anchorage, but he was unaware that the engine had only been turned on air astern. Over an hour after leaving the anchorage, the pilot was informed that the cause of the engine failure had not been positively diagnosed, but no additional precautions were put in place and the harbour authority was not told.

The large, slow speed, diesel main engine on *Savannah Express* was of a revolutionary design without the normal camshaft and mechanical timing gear. This equipment had been replaced with a computer controlled electro-hydraulic system. The system had suffered a number of technical problems since *Savannah Express* had left the builder's yard in Korea in April 2005.

At Singapore, the previous port of call, a service engineer from the engine manufacturer had attended the vessel to rectify various guarantee claims. In addition, three out of the four pressure sensors on the hydraulic system had failed during the preceding 2 months, but the service engineer was unable to provide any spares, due to a problem with supply. The chief engineer received the impression that the sensors were used for pressure indication only, and that the loss of the final sensor would not cause the engine to stop. As a consequence of this erroneous information, the chief engineer informed the master that he was content for the vessel to sail with only one sensor working.

On the morning of the accident, the final pressure sensor failed, which resulted in the failure of the main engine as the vessel approached the Nab Tower.

Without any spare sensors, and misunderstanding the displayed hydraulic pressure information, the engineers resorted to disabling an electronic control system to enable a back-up system to take-over. Unbeknown to the engineers, this resulted in insufficient hydraulic power being available to operate the engine astern. Later, when astern power was needed as the vessel entered the swinging basin before berthing, the engine failed to run.

Although the engine manufacturers provided a short training course for operators of the new engine, the chief engineer and electrical engineer on board *Savannah Express* had not attended this course. However, the course was of a superficial nature, and might not have provided them with sufficient knowledge to successfully diagnose the engine failure either at the Nab Tower or at the Upper Swinging Ground.

The engine manufacturer also provided the vessel with a 24 hour telephone hotline to give additional technical support. Unfortunately, the chief engineer, who had joined the vessel at short notice, was not aware of this.

Although the engineers on board were experienced and held appropriate STCW certificates, they were unable to correctly diagnose the reason for the engine fault at the Nab Tower and, later, at the Upper Swinging Ground. The increasing levels of electrification of engine control and propulsion systems require increased training requirements in the operation, maintenance and fault finding of these technically complex, and multi-discipline systems. The STCW training standards for ships' engineers have not been updated to account for modern system engineering requirements. The accident has also highlighted the essential need for the development of adequate type specific training.

Corrective action has been taken by the ship manager of *Savannah Express,* the Statutory Harbour Authority of Southampton and the tug operating company. Additionally, the MAIB has circulated a synopsis of this accident, with the lessons to be learned, to shipowners around the world.

Specific recommendations have been addressed to the Maritime and Coastguard Agency (MCA), the ship manager of *Savannah Express* and the engine manufacturer, and UK harbour authorities with the purpose of:

- Raising at IMO the need for improved training requirements of ships' engineers and electricians;
- Improving the MAN B&W specialised training course for electronically controlled engines;
- Raising awareness of the inability of some large, powerful vessels to fully test their main propulsion systems prior to departure from the berth, due to likely mooring damage.