

SYNOPSIS

At 0309 (UTC+5) on 23 March 2006, a fire was detected on board the cruise ship *Star Princess*. The ship was on passage from Grand Cayman to Montego Bay, Jamaica, with 2690 passengers and 1123 crew on board. The fire was investigated by the Marine Accident Investigation Branch (MAIB) on behalf of the Bermuda Maritime Administration, in co-operation with the United States Coast Guard (USCG), and the United States' National Transportation Safety Board (NTSB).

The fire started on an external stateroom balcony sited on deck 10 in the centre of main vertical zone 3, on the vessel's port side. It was probably caused by a discarded cigarette end heating combustible materials on a balcony, which smouldered for about 20 minutes before flames developed. Once established, the fire spread rapidly along adjacent balconies and, assisted by a strong wind over the deck, it spread up to decks 11 & 12 and onto stateroom balconies in fire zones 3 and 4 within 6 minutes. After a further 24 minutes, it had spread to zone 5. The fire also spread into the staterooms as the heat of the fire shattered the glass in stateroom balcony doors, but was contained by each stateroom's fixed fire-smothering system, the restricted combustibility of their contents, and their thermal boundaries. As the fire progressed, large amounts of dense black smoke were generated from the combustible materials on the balconies, and the balcony partitions. This smoke entered the adjacent staterooms and alleyways, and hampered the evacuation of the passengers, particularly on deck 12. One passenger died as a result of smoke inhalation, and 13 others were treated for the effects of the smoke.

A number of factors were identified which indicate that, although the balconies met the fire protection requirements of SOLAS II-2, the basic principles of this regulation did not apply to these, or other, external areas. These included:

- The balconies' polycarbonate partitions, polyurethane deck tiles, and the plastic furniture were highly combustible and produced large quantities of very thick black smoke when burned.
- The glass in the doors between the staterooms and balconies were neither fire rated to meet with the requirements of an 'A' class division, nor self-closing.
- The balconies crossed main zone fire boundaries, both horizontally and vertically without structural or thermal barriers at the zone or deck boundaries.
- No fire detection or fire suppression systems were fitted on the balconies.

The fire was extinguished within 1.5 hours after it had started. The crew fought the fire with water hoses from adjacent external areas, and from internal alleyways. Difficulty was experienced in reaching the fire due to the construction and partitioning of the balcony areas. A total of 79 staterooms were condemned after the fire, and a further 218 were damaged by fire, smoke, or water. The damaged area covered 3 vertical fire zones on 5 decks.

The initial findings of the investigation, together with guidance on the immediate actions to be taken, were brought to the attention of cruise ship operators through a Safety Bulletin published by MAIB and a safety notice issued by the International Council of Cruise Lines (ICCL). Included in the MAIB Safety Bulletin were recommendations to the UK Maritime Administration aimed at developing amendments to the 1974 SOLAS Convention to ensure that fire protection arrangements in external areas such as balconies were as robust as those currently applicable to internal areas of passenger ships. Following a submission to

IMO by the UK delegation at MSC 81 in May 2006, the committee approved both a circular (MSC.1/Circ 1187) for immediate distribution detailing operational measures recommended for immediate implementation on passenger ships with balconies, and proposed amendments to SOLAS and the FSS Code. The proposed amendments are aimed at ensuring that balcony partitions are non-combustible, restricting the use of combustible materials on stateroom balconies, and requiring ships with balcony furniture, which is not of restricted fire risk, be fitted with fixed fire detection and extinguishing systems. The proposed amendments to SOLAS will be considered for adoption at MSC 82 in December 2006.

In view of the responses to the recommendations issued in the MAIB's Safety Bulletin, no further recommendations have been made in this report.