

NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Sub-Committee

TECHNICAL BULLETIN - OCTOBER 1997

157. Sonacase Twist Accident in Sweden

We have been informed by the Swedish authorities of the details of a fatal accident, in May 1997, involving a Sonacase Twist ride. A defect in a passenger restraint mechanism resulted in a girl being ejected from a car.

The accident stemmed from the same type of design defect which caused a serious accident in the UK in 1996. This was reported in NAFLIC Technical Bulletin No. 134. The restraint release handle / lever was found to have developed excessive travel, allowing the pawl to pull out of its guide. There is therefore now independent corroboration for the thoughts expressed in TB 134 - i.e. that there is a design fault affecting more than one Sonacase Twist ride.

In the Swedish-owned ride, each lever was locally built up by a small blob of weld which, by bearing on the pivot post, restricted the lever travel. However, safety relies upon the continued correct location and lack of wear of this blob of weld and of the contact surface. Edge deformation of the pivot post had developed to a dangerous degree. The Swedish report also identified another fault in the mechanism, having found fatigue cracking in the lever.

We have no information about modifications to Sonacase Twists other than those involved in the two accidents on which we have reported. Controllers of unmodified rides will need to consider what action to take.

We would emphasise to designers and Design Review Inspection Bodies the importance of good design and fatigue calculation of locking mechanism components, including plunger springs. This applies to many rides having safety critical restraints. Thorough Examination Inspection Bodies may also need to consider the continued sound condition of such springs (e.g. corrosion). On Sonacase Twists these springs are normally visible and their monitoring is comparatively straightforward. The condition of the pawls, levers, etc., for instance the extent of any wear, is clearly important.

(Technical Bulletin No. 014 - May 1992 reported a different problem concerning Sonacase Twist passenger restraint locking).

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