

NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Sub-Committee

TECHNICAL BULLETIN - FEBRUARY 1997

143. Pinfari RC40 Roller Coaster Brake Units

Leisure Technical Consultants Ltd have reported 2 problems discovered on the brake units of a 3 year old Pinfari roller coaster. Although the arrival brakes are likely to be the worst affected it may be important to consider all similar components in other brake units. We note that, while the brake unit design on all RC models is similar, other Pinfari series roller coasters (e.g. ZL) are of different design. The two problems are as follows :-

1. Cracking has been found at one of the shouldered changes of section on the pivot pins located in both the fixed and moving calipers. It is thought that these cracks cannot be found by NDT or otherwise without removing the pins from the caliper units. When removed, we believe that a surface method (i.e. magnetic or dye penetrant) is most appropriate. Pins having 50% of the cross section already consumed, thought to be dangerously close to failure, have been found. It seems to be likely that the fatigue life, by design shortcoming rather than by poor manufacture, is quite short.
2. The pins described above are located in bosses circumferentially welded into the caliper hollow sections. Fatigue cracks from the weld toe have been found on a number of these. It is thought that, if kept clean, daily visual inspection would be capable of finding these cracks before they can develop to a dangerous extent. Registered Inspection Bodies carrying out Thorough Examination may decide to go beyond visual examination, bearing in mind the fairly short term nature of the cracking.

Committee Members :- Dr Garry Fawcett (Chairman), Mr Richard Barnes, Mr Bob Nicholls, Mr Doug Dadswell, Mr Peter Smith and representatives of Plant Safety Ltd, and Banwell & Associates Ltd

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