NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Committee

TECHNICAL BULLETIN - MARCH 2002

239. Ski Jump Coasters

Further to Technical Bulletin 071, Mr I Grant has informed us of instances of flaws which have been found in at least four rides of the Ski Jump Coaster type, two of which led to total failure of a main arm trunnion.

The flaws occur at the change of section of the trunnion and the cause is thought to be non-infinite fatigue life, compounded by excessive play in the main arm trunnion and by a lack of proper fillet radius at the change of section. Excessive play in the sub arm which carries the wheel is also thought to cause, or at least contribute to, cracking of the trunnion. Detection of the cracks is most reliably achieved by Magnetic Particle NDT; visual and ultrasonic NDT methods have proved to be ineffective. It has also been noted that in the majority of cases of cracked trunnions the original phosphor bronze bearings had been replaced by nylon bearings and it is possible that this substitution had accelerated the onset of cracking.

Controllers of this type of ride may need to monitor the development of a problem by carrying out regular (weekly?) inspections of the assembled ride to determine the extent, if any, of play in the trunnion and wheel sub frame bearings; i.e. between the trunnion and its bearing shell, or between the shell and its housing, or between the sub frame pivot and its bearing. As the extent of the play develops the controller needs to consider what corrective action is necessary and advise his Appointed Inspection Body (AIB) accordingly. Should a check of the trunnion bearing shell reveal obvious ovality or unequal wear, a difference in minimum and maximum diameters of more than 0.25mm (0.01in.) may require replacement of the shell.

AIBs carrying out Thorough Examinations of these rides should consider the interval between successive NDT inspection of trunnions on an individual ride basis, based on a suggested interval of 800 operating hours.

PO BOX 752, SUNDERLAND, SR3 1XX
TEL: (0191) 5239498 FAX: (0191) 5239498