NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Sub-Committee

TECHNICAL BULLETIN - JULY 1992

021. Reverchon Matterhorn (Phantom Chase)

In an incident earlier this year a car became detached as a result of wear in the swivel ball and socket. The following car collided with it injuring the occupants of the second car.

The HSE have issued the following recommendations for inspection which we reproduce verbatim :-

"a) a sample number (say 6) of the car suspension ball and socket joints should be extracted from the car suspension drop arm mounting shaft:
b) the ball should be swivelled and wiped clean for close examination by a competent person:
c) if the hard final electroplated layer of chromium plating forming the bearing surface of the ball has worn away to the less bright penultimate coating, the ball should be replaced together with the spherical bearing bush.
d) the main ball race should also be checked for wear and cleaned or replaced if necessary.

Recommendations for Secondary Support System :-

a) A secondary support system should be provided by the use of a flexible link of tested chain or wire rope and suitable fixings to the car and radial arms.
b) Each secondary support system should be designed so that it is not normally under tension in use and should be of sufficient strength and properly installed and tested to withstand without failure the impact resulting from failure of the primary supporting system.
c) The sample examination of the car primary and secondary supporting system should be included on the schedule of inspection for maintenance, servicing during intermediate intervals between and at the annual thorough examination of the fairground ride.

Some minor cracking was also found on the radial arms of the failed ride. It is therefore recommended that the radial arms also be examined when the swivel arms are inspected."

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The Standards and Related Documents Sub-Committee wish to particularly emphasise sub-paragraph b) relating to design of secondary support systems. The energy which must be absorbed as a result of failure of the primary support system is considerable and there may be secondary devices which are inadequate. Design calculations need to demonstrate that sufficient energy absorption capacity (without excessive deflection) is available in the secondary device.