

NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Committee

TECHNICAL BULLETIN - SEPTEMBER 2005

300. Earthing of Passenger Units to Safety-related Control Systems

We have been informed of a design problem, first noticed on a Maurer Sohne coaster ride, which may be relevant to any roller coaster train / car or indeed any moving passenger unit that connects to a safety related control system by means of a sliding collector system and relies upon an earth connection for first fault detection.

In the particular system above, these connections are only made in the station; however this advice might also apply to any rides with continuous pickup systems, even for slow moving devices, that have onboard safety critical control or detection circuitry.

As the only voltage available in these instances is 24V, it has been perhaps the correct rationale for shock protection, that an earth connection is not required. However, some control systems require the chassiswork to be connected to earth to detect first fault failures such as inadvertent grounding of parts of the seat restraint safety-related control circuit.

It is important for designers to ensure in such cases that the chassis or metalwork of cars of this type are provided with an earth connection whilst the control circuit is in use, as outlined in EN 60204 - *Safety of machinery. Electrical equipment of machines.*

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