

# NAFLIC

*National Association For Leisure Industry Certification*

## **Standards & Related Documents Sub-Committee**

### **TECHNICAL BULLETIN - NOVEMBER 1995**

#### **122. Rides with Counterweights**

This Technical Bulletin concerns those amusement devices in which the passenger unit rotates about a horizontal axis (and maybe others too) and which employ counterweights to (partially) balance the live load. This class of rides includes Magic Carpet, Skymaster, Miami Trip, and Top Spin types plus many others.

We remind those concerned that these rides are normally designed so that the counterbalancing overcomes the unladen, but not the full, passenger unit. This generally means that, in the loading / unloading position, the empty (or partially empty) passenger unit is in a position of unstable equilibrium. That is to say that, without parking brakes or other external locking, the passenger unit may, with minimum effort, be displaced and rotate through 180 degrees.

For these devices, it is our view that fail-safe parking brakes (which remain on despite supply failure), or equivalent, are a design necessity.

If we are correct in the view expressed in the previous paragraph then it presumably follows that Design Review should check the degree of counterbalancing and, where required, confirm that parking brakes (which remain on when there is loss of electrical, hydraulic or pneumatic supply, as appropriate) having adequate capacity have been included in the specification. Following this, subsequent Assessments of Conformity to Design should verify that brakes to the specified design have been incorporated into each device, and Initial Test should demonstrate that they are working satisfactorily, including the simulation of supply failure.

Please note that we have been specific to a single issue in this Technical Bulletin. There are likely to be other important matters relating to the control systems on these devices which need to be considered.

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