

# NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Committee

TECHNICAL BULLETIN — JUNE 2008

## 336. Safety Critical Modifications

It is apparent that there is some confusion as to what constitutes a Safety Critical Modification. This Technical Bulletin does not add new requirements but seeks to clarify the existing text contained within HSG 175.

### **Safety Critical Modifications**

The glossary to HSG175 describes a **safety-critical modification** as:

*“any alteration to the hardware and/or software of a piece of equipment including the introduction of a safety-critical component which results in a deviation from the original design specification.”*

The practical effect of this is that ANY change to the design specification of a device requires pre-use inspections if it affects the safety of the ride, the pre-use inspections are required for safety critical aspects of a design, including modifications.

Where the modification does not have a safety critical impact, no pre use inspections will be needed. The decision as to whether a modification is safety critical needs to be made by the person designing the modification.

The controller’s responsibilities are described in paragraphs 181 to 184 in HSG175

*“181 Before modifying any device, make sure that the proposed modification will be safe.*

*182 A safety-critical modification includes any changes to:*

- *loading(eg changing seating arrangements, fitting heavier passenger units);*
- *speed or operating cycle;*

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- *range (eg height of lift);*
- *safety envelope;*
- *safety-critical components, devices or systems;*
- *structural and mechanical components;*
- *drive mechanisms;*
- *control mechanisms (eg brakes, shock absorbers, speed limiters, speed or position sensors);*
- *software;*
- *passenger containment (including fences and barriers);*
- *passenger height restrictions.*

183 *It will also include:*

- *use of a device outside its specification or normal environment for which it was designed;*
- *reinstallation of a fixed device in a different location.*

184 *If in doubt, it should be assumed that every modification is safety-critical and the advice of a competent person should be sought.”*

There is nothing in the list above that limits the scope of a Safety Critical Modification only to “Safety Critical Components”. However, the introduction or a change to a Safety Critical Component will ALWAYS be a Safety Critical Modification.

### **Safety Critical Components**

Safety Critical Components are defined separately and are unrelated to the definition of a modification as:

*“any type of component on an amusement device on which the safety of passengers (or others who may be affected) is dependant”*

### **Repairs**

A repair may not constitute a Safety Critical Modification, providing that the design specification is unaltered. As an example the correct grades of materials should be used when replacing like-for-like items.

### **Risk Assessment**

If the original design specification is changed, improved or otherwise, the designer of the change has a duty to undertake a suitable and sufficient risk assessment for the design change and document any significant findings. This risk assessment should be part of any review undertaken as part of Design Review.

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