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UNITED ARAB EMIRATES

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Service Bulletin 2021-03#03 Risk Mitigation Measures on the Bobsled Coaster Vehicle Seat Compartment

Dear Sir or Madam,

This service bulletin describes preventive measures to minimize the possible risk of injury to passengers of a Bobsled Coaster Vehicle in case of passenger's intentional misbehavior during the ride.

We have been notified about an incident happened on a Bobsled Coaster Ride, where a young passenger managed by intentional misbehavior to willfully stick out his lower leg out of the vehicle. Depending on the physical capabilities and mobility of the rider, it may happen that stationary objects installed on the side of the track could be reached and an impact may occur. This can result in serious injuries.

It shall be noted that this hazardous incident was caused by a willing action and misbehavior of the passenger. The base for a safe operation of this ride type is dependent on the rider complying to the instructions for use of the ride clearly indicated in the station area and the vehicles.

This service bulletin strongly recommends to check the appropriate signage in the station area and on each seat row of the vehicle. Verbal announcements prior to dispatch may also support to draw the rider's attention to the user instructions for a safe ride.

Based on this incident an assessment of the situation was performed together with a 3rd party approval body to evaluate potential mitigation measures.

As a result, a recommendation is issued by this service bulletin to add extensions to the vehicle entry and exit side openings as described further down in this document. It shall be noted that these measurements can mitigate the risk but do not fully eliminate it. Furthermore, these extensions can influence the load/unload situation at the station since it requires the passengers to actively overstep these extensions.

Please do not hesitate to contact us if you have any questions.

Best regards,

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Ride:	BC 2157 - Green Hornet
Object of Change:	1093-01-00-00-00
Reason for Information:	Mitigation of risks associated with intentional misbehavior of passengers.
Reason for Change:	In case of intentional misbehavior and physical capabilities of the passenger, it may happen that stationary objects installed on the side of the track could be reached and an impact may occur. This can result in serious injuries.
Measures to be taken:	<p>A: Information of passengers: Reevaluation of operation and use risk assessment of the ride in order to increase awareness of the passengers for the ride's safety rules.</p> <p>B: Mechanical adjustments: A proposal is issued by this service bulletin to add additional entrance panels to the vehicle entry and exit side openings.</p>
Regular Tests	Independent of the following described modifications, tests which are shown in the operating and maintenance instructions remain valid.

A: Information of passengers:

The operation and use risk assessment prepared by the ride operator shall incorporate the provided information. It shall be checked that appropriate signage e.g. at the entrance of the ride, the loading area and on each row of the vehicle is clearly visible, stating that legs and arms must be inside the vehicle at all times. Furthermore, it shall be stated that failure to follow these guidelines may result in serious injury. Figure 1 shows an example of such a signage.



Figure 1: Example of a signage

Furthermore, it shall be evaluated, if it is necessary to verbally announce this guideline to the passengers before starting of the ride – especially for younger passengers.

B: Mechanical adjustments:

Together with a third party, it was investigated that a higher threshold in the lower area of the entrance and exit opening of the vehicle makes it more difficult to reach stationary objects installed on the side of the track with the toe of the foot. However, it shall be noted that this might create a tripping hazard during embarking and disembarking the vehicle. Therefore, the ride operator must evaluate in its own operation and use risk assessment these two risks since the tripping hazard might be influenced by the ambient condition of the station (e.g. lighting, color of floor, contrast between vehicle and floor etc.)

The proposed entrance panels shall have the following dimensions:

- Height of 185 mm
- Width of 120 mm (viewed in the lateral direction of the vehicle)

according to Figure 2.

The shape of the entrance panel may vary due to different vehicle body designs. The entrance panels shall be installed at both rows and both sides filling the entire clear width of the openings.

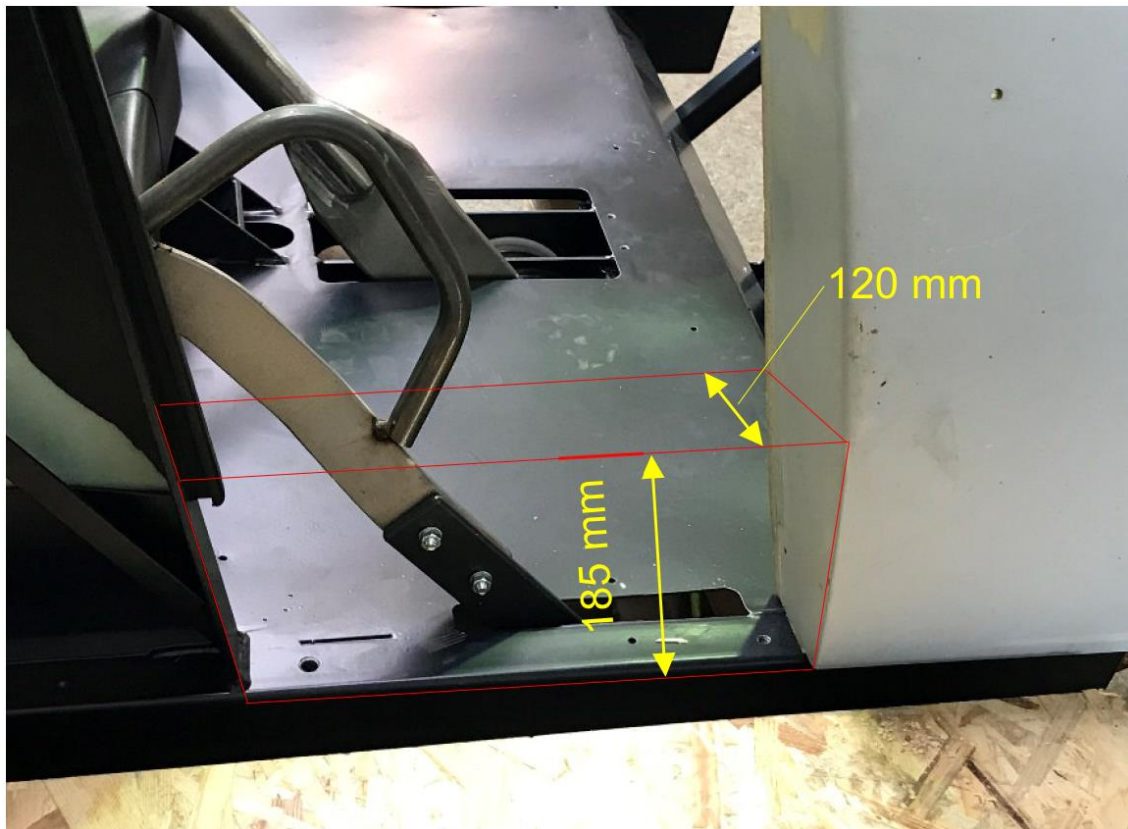


Figure 2: Entrance panels at the lower area in the front row

Reaching stationary objects installed on the side of the track with these entrance panels installed might be still possible but it requires even more effort to:

1. extend the foot beyond the outer contour of the vehicle and
2. extend the foot further down (extension opposite lower leg).

Therefore, the risk of a collision with stationary objects installed on the side of the track is minimized but not eliminated.

Since the vehicle FRP is custom designed and varies from ride to ride, a custom designed solution for this additional entrance panels must be used. Therefore, we cannot offer a standard additional entrance panel. We can support you in the design and the fabrication of these panels if your operation and use risk assessment comes to the conclusion that these panels shall be installed.