

Uncontrolled When Printed
RAILTRACK
Safety & Standards

Briefing Notes for:	Ride Vibration and Noise Environment Inside Railway Vehicles	
Document No:	GM/RT2160	Issue: Two
Subject Committee(s):	Traction & Rolling Stock	
Issue Date:	October 2000	
Initial Compliance Date:	2 December 2000	

BACKGROUND

The changes to GM/RT2160 are related to the introduction of high speed (>125mile/h) and tilting trains onto Railtrack controlled infrastructure. The changes have been limited in scope to those risks that these new trains introduce.

The UIC is proposing to limit pressure changes experienced by passengers and staff in tunnels for reasons of medical safety. The proposed limit is a maximum change in pressure of 10 kPa within any part of the time taken by the train to pass through any tunnel.

The UIC limit becomes particularly relevant with the introduction of sealed trains and hence the potential to travel at higher speeds through tunnels without discomfort to passengers: the limit proposed would protect train crew in the event of sudden failure of a train's pressure sealing.

Research has not identified the basis for the present limit of a maximum pressure variation of 7 kPa specified in clause 7.1(a) of Issue 1 of GM/RT2160. The reason for the imposition of the other limit of a maximum change in pressure of 7 kPa, within any time period of three seconds, specified in clause 7.1(b) of Issue 1 of GM/RT2160 is also unclear. It is assumed to be based on a BR Research recommendation that pressures be limited to a maximum change in pressure of 7 kPa within any time period of **four** seconds. The latter is a medical safety limit, which also provides protection against severe discomfort for rail staff.

KEY CHANGES INTRODUCED BY THIS STANDARD

The medical recommendations have been accepted and consequently the limits of the pressure changes to which train crew can be exposed specified in GM/RT2160 have been revised as follows:

The pressure variations experienced by train crew inside a vehicle shall not exceed:

- (a) a maximum change in pressure of 10 kPa within any part of the time taken by the train to pass through any particular tunnel;
- (b) a maximum change in pressure of 7 kPa within any time period of four seconds.

Limit (a) must not be exceeded even in the rare event of the sudden failure of the

Uncontrolled When Printed

sealing of a pressure-sealed train. (In such an event it would be tolerable for limit (b) to be infringed.)

Limit (a) replaces the previous limit of a maximum pressure variation of 7 kPa. The new limit of 10 kPa is to be stipulated by the UIC under STI rules as a new medical safety limit. It will, in particular, protect train crew on high-speed sealed trains in the event of a sudden failure of the pressure sealing.

BR Research has in the past recommended limit (b) as a medical safety limit, which also provides protection against severe discomfort for rail staff. Compared to the 10 kPa limit specified in (a) it deals with a more frequent non-emergency possibility for unsealed vehicles and cabs. It is a more stringent limit than the limit of 7 kPa within any time period of three seconds specified in Issue 1 of GM/RT2160.

COMPLIANCE

The provisions in this document are to be complied with from 2 December 2000 for all new procurement contracts for new vehicles and for all new programmes involving engineering change to existing vehicles. The provisions of this document are also to be complied with by all trains which operate at speeds in excess of 125 mile/h.