

RAILTRACK

Safety & Standards

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- Briefing Notes for:**
- **Braking System Requirements and Performance for Trailer Coaching Stock**
 - **Braking System Requirements and Performance for Traction Units**
 - **Braking System Requirements and Performance for Multiple Units**
 - **Braking Principles for Railway Vehicles**
 - **Braking System Requirements and Performance for Trains Which Operate Above 125 mile/h**

Document Nos: **GM/RT2041** **Issue:** **Two**
 GM/RT2042 **Two**
 GM/RT2044 **Three**
 GM/RT2045 **Two**
 GM/RT2046 **One**

Subject Committee(s) **Traction & Rolling Stock**
 Train Control and Communications (GM/RT2046 only)

Issue date: **April 2000**

Initial Compliance Date **03/06/00**

BACKGROUND

The existing Railway Group Standards that mandate the braking performance of rail vehicles only define stopping distances from speeds up to a maximum speed of 125 mile/h. The proposed introduction of high speed trains capable of running at speeds greater than 125 mile/h means that their performance needs to be defined. The existing Standards are also aimed either at traditional trains of locomotives and coaches or at multiple units.

KEY CHANGES INTRODUCED BY THESE STANDARDS

The new Standard GM/RT2046 defines the braking system and stopping distances performance requirements to allow safe operation on Railtrack lines at speeds in excess of 125 mile/h.

The new high speed trains will generally be fixed or semi-fixed formations that can have distributed power systems. These trains do not conform with the definition of locomotives and coaches nor do they fit within the definition of multiple units. The new Standard will therefore cover any trains capable of operating in excess of 125 mile/h and not exceeding 187 mile/h.

The performance requirements not exceeding 125 mile/h are the same as those in current braking performance Standards. As speed rises, the adhesion available between the wheel and rail decreases, therefore above 125 mile/h a lower braking rate has been used together with a small offset around 125 mile/h to allow for the finite time it will take to change braking rate.

A new braking performance curve has been produced for GM/RT2046. This only describes the required stopping distances from speeds in excess of 125 mile/h. For speeds not greater than 125 mile/h the existing Standards will apply. Unlike the existing Standards, GM/RT2046 does not show the appropriate minimum signalling distance curve. Above 125 mile/h different signalling arrangements will be likely. As these are developed there will need to be confirmation that the braking requirements and these signalling arrangements are compatible.

The existing Standards GM/RT2041, GM/RT2042, GM/RT2044 and GM/RT2045 have been updated to include new cross references and definition changes that reflect the introduction of the new Standard GM/RT2046. All the definitions have been included in each document in full rather than referencing other document in the suite.

Sections 5.1.1 to 5.1.4 of GM/RT2041, GM/RT2042 and GM/RT2044 have had the reference to 'permissible line speed' deleted. This removes the ambiguity that could result when tilting trains operate at 'enhanced permissible speeds'. It also improves the clarity for existing trains because the phrase was considered unnecessary.

In GM/RT2042 the braking distance for Curve A3 in Figure 3 at 125 mile/h has been changed from 1775m to 1786m. This is a correction of the previous incorrect distance. This distance now corresponds with the equivalent braking distance in GM/RT2041.

COMPLIANCE

The compliance clauses for this suite of standards have been clarified to identify the effective date for new vehicles. Refer to the 'Compliance' clause of each document for details.