

RAILTRACK

Safety & Standards

Briefing Notes for:	Tilting Trains: Controlling Tilt Systems to Maintain Clearances	
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Subject Committee(s):	Special Subject Committee with representatives from OSSC, Traction and Rolling Stock, Train Control and Communications, Track	
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BACKGROUND

Tilting trains are to be introduced on Railtrack controlled infrastructure. The tilting systems give the potential for a higher speed of operation around curves than is possible with non-tilting trains, providing reduced journey times.

Tilting Trains are subject to the explicit clearance requirements specified in Railway Group Standards. On sections of route where the requirements cannot be satisfied for the whole route, it is necessary to ensure that the tilting trains are only able to tilt where the clearances will be maintained. The proposed controls ensure that the required clearances are achieved by requiring the deployment of a Tilt Enable and Supervision System. The purpose of the Tilt Enable and Supervision System is to provide a 'tilt enable' authority where tilt operation is permitted and to supervise the operation of the Tilt Control System to ensure that the train does not tilt on the approach to and over Tilt Prohibited Sections.

KEY ELEMENTS INTRODUCED BY THIS STANDARD

The proposed controls are concerned principally with identifying the sections of route along which tilting is permitted/prohibited and with specifying the general system requirements for ensuring that the tilt mechanism is only enabled where permitted. The controls fall into four main categories as summarised below.

Infrastructure Requirements: Requires the identification of Tilt Prohibited Sections for each tilting train design and the locations where restrictions on trackside staff are required. The relevant Sectional Appendix is required to document, for each specific type of tilting train, the routes where they can operate in tilting mode and the sections of those routes where tilting is prohibited.

Uncontrolled When Printed

Each Tilt Prohibited Section throughout a route shall be equipped with a fully functional infrastructure element of the Tilt Enable and Supervision System.

Train Requirements: Specifies that a tilting train shall be equipped with a fully functional and operational Tilt Enable and Supervision System when operating in tilt mode over a route where a Tilt Prohibited Section applies to the train. Additionally the Standard requires that safety related data associated with the operation of the Tilt Enable and Supervision System shall be recorded on the train to assist post incident investigations.

System Requirements: Specifies the general requirements of the Tilt Enable and Supervision System including the criteria for tilt enable authorisation and removal, the tilt supervisory requirements, a message protocol to be defined by the Infrastructure Controller, the information presented to the driver and the ergonomics of the driver/system interface.

Operating and Faults/Restriction Requirements: Specifies actions and arrangements to be taken in the event of system failure.

COMPLIANCE

Compliance with the Standard will be from 3 June 2000 and take effect from the date when Tilting Trains commence tilting operation, including testing and commissioning trials with the tilt system operative.