

## AXLELOAD LIMITS FOR TWO-AXLE WAGONS

Two-axle freight vehicles with pedestal suspensions have been identified as the cause of considerable track damage. As a result, in September 1990, a ban was introduced on any new two-axle wagons at 25.5 tonne axleload unless satisfactory track force behaviour could be demonstrated. A study was therefore undertaken as part of the Railfreight Bogies project to investigate the dynamic forces and resulting track damage costs for a range of two-axle freight vehicles.

Dynamic track forces were calculated using the Vehicle Dynamics Unit's VAMPIRE suite of computer prediction programs and the associated track costs were derived using the Track Research Unit's mini-MARPAS method. Track costs were based on the Westbury to Reading Up line.

In order to achieve a position somewhat better than existing 25.5 tonne bogie vehicles, and to give a margin for such effects as excessive friction levels, an axleload of 20.5 tonnes is suggested as a suitable future limit for two-axle friction wedge damped vehicles.

Track costs on average track for a two-axle 25.5 tonne axleload wagon with optimised linear suspension characteristics are comparable with those for the poorer existing bogie vehicles. If this level of track damage is deemed to be acceptable then two-axle wagons at 25.5 tonne axleloads with sophisticated suspensions are acceptable. Careful control of such a vehicle would be necessary to ensure that the suspension was behaving as expected.