

## CLASS 37 LOCOMOTIVE FITTED WITH YAW RELAXATION - LATERAL STABILITY AND RESPONSE STUDY

The Class 37 locomotive bogie design does not lend itself to good curving due to its stiff primary yaw suspension. The wear rate of both flange and rail is therefore high on sharply curved running lines.

To significantly improve the wear, the wheelsets must be allowed to move into a more radial position. This can be realised by fitting a soft primary yaw suspension in the form of a relaxation system. It comprises a combination of suspension elements to provide a low yaw stiffness for curving, with yaw dampers and springs to ensure lateral stability by acting as struts in high frequency kinematic modes.

This report documents the lateral stability and response study of a Class 37 locomotive fitted with yaw relaxation. It shows the design to be a viable method of overcoming major curving difficulties whilst maintaining an adequate stability margin at 144km/h operating speed.