



### Jan.06 DMU rail vehicle component life assessment

The end of December 2005 and beginning of the New Year found **TestPRO Limited** carrying out a series of tests on a DMU rail vehicle to determine the stresses in a suspension component.

The test vehicle was a Coradia 175 two car DMU is operated by First North Western out of Chester depot, the original manufacturer being ALSTOM Transport, Birmingham. **TestPRO Limited** was asked to take stress measurements on specific suspension components to gather data for input to a Finite Element model using the particularly undulating and curved route that this vehicle sees in service through central Wales.

Accurate and up-to-date test data is essential in order to be able to predict the expected life of suspension components and to assist with calculations for future design.

The **TestPRO Limited** approach for this project was to fit the suspension component of interest with a comprehensive array of strain gauges and load cells, and in the first instance perform a static 'calibration' test on the straight and level track environment in the depot. Speed and acceleration transducers were added for a track test over the full service route resulting in many Gigabytes of data being logged by our high specification Laptop based instrumentation.

The conclusions resulting from the track test measurements and Finite Element modelling will lead to component design improvements for the Coradia and future vehicles. **TestPRO Limited** is delighted to have supported this project by providing a cost effective testing service as an essential part of the design review process.