

WEAR OF CAST IRON BRAKE BLOCKS ON CLASS 309 EMU MOTOR COACHES

Following concern expressed at the rapid wear rate of the R1 cast iron brakeblocks fitted to the motor coaches of Class 309 Inter-City electric multiple units. The mileage run between reblocking and the scrapping size of the blocks is monitored by the depot supervisor at Clacton TMD where the units are maintained. Although exact figures are not available it is known that in recent years the time between reblocking has become reduced by about one half. As part of a larger programme to investigate the costs associated with braking vehicles, R&DD has examined the braking duty of these units.

The Class 309 units work exclusively on the London to Clacton and Walton-on-Naze services. They are the only electric multiple units officially designated to run at 100 mile/h. There are only two types of motor coach, a driving and non-driving version, only one of which is used per unit. Each motor coach weighs 60.2 tonnes tare and no difference in brakeblock life can be found between the two types of vehicle. Class 309 units are the only ones fitted with a Commonwealth type motor bogie. There are two brakeblocks per wheel, each block actuated by its own air brake cylinder, giving a block force of 30kN. No systematic difference is found in wear with position.

The report concludes:

- The braking duty of the Class 309 motor coaches approaches the limit of low phosphorus cast iron blocks.
- There has been a change in the consistency of composition of cast iron brakeblocks since 1978 that may be reflected in the reduction of brakeblock life.
- The block wear rates measured in service are in reasonable agreement with those predicted by dynamometer tests.