

## A THEORETICAL STUDY OF DISC BRAKE TEMPERATURES WITH PARTICULAR REFERENCE TO CLASS 313 STOCK

The performance and wear of friction brakes largely depend on the interface temperatures reached between the friction pairs. Ideally friction brake materials should have high thermal conductivity and capacity so that interface temperatures reached during repeated stops and drag braking do not become too high. The temperatures also depend upon the cooling of the braking surfaces in the train air slip-stream.

This note discusses the effect of these parameters and an estimate of the magnitude of the cooling factors is made from some rudimentary measurements of Class 313 electric multiple units in service fitted with three different types of brake discs.

The theoretical model used for these calculations is reasonably representative for studying temperatures in friction brakes. The peak temperature reached on the surface of any of these discs is unlikely to be greater than 180°C. It has been shown that the wear of discs and pads does not vary greatly up to 200°C and consequently the wear of the three disc types, under test at the moment, is not expected from these measurements to differ from each other.