ADHESION/SLIP CHARACTERISTICS IN TRACTION

Measurements of the adhesion/slip characteristic in the traction mode were made with an instrumented traction axle on a modified Class 46 locomotive.

Many rail conditions were examined and the results are presented in this report. The initial slope of the adhesion/slip curve is related to the adhesion value at breakaway, with lower adhesion values having lower slopes. The breakaway, at slips of approximately 1%, is followed by a region of relatively constant adhesion up to slips of approximately 10%. This is followed by a fall in adhesion, unless the breakaway is from a low adhesion level (less than approximately 0.07).

For values of slip above 100% it was found that slip speed was more generally useful as a means of specifying the characteristic. Tests were made at zero locomotive speed, where slip has no meaning, and results are presented as functions of slip speed.

Adhesion values in the range 0.02 to 0.41 were examined at slips up to 1200%.

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