THE EFFECT OF BLOCK GEOMETRY ON THE FRICTION AND WEAR OF CAST IRON BRAKE BLOCKS

Dynamometer stop braking tests were carried out to compare the standard cast iron block geometry (R5) with narrow blocks (R11), tandem blocks and short blocks. It was found that whilst friction performance was slightly affected by changes in block geometry, the effects on wear rate were considerable. A general empirical correlation of wear rate with peak surface temperature and brake block pressure has been derived, and is used to rank locomotive brakes by their predicted wear rates. It is shown that the excess cost of operating the Class 47 locomotive fleet with narrow brake blocks amounts to more than £650,000 per annum.

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