

STUDIES OF THE DYNAMICS OF VEHICLES WITH CROSS-BRACED BOGIES

The memorandum describes the results to date of work being carried out to quantify the benefits that can be obtained by using the technique of cross-bracing. This is the method whereby the wheelsets of a bogie are directly connected in such a way that the yaw movement of one causes a yaw in the opposite sense of the second, whilst at the same time the wheelsets are laterally restrained one to the other. The effect of cross-bracing is examined and the implications of the different options upon the curving performance discussed. The most significant result of poor curving is wear of both wheels and rail, so that there is consequently a financial incentive to obtain a good performance from the bogies. It is shown that the technique improves the curving performance of the bogies in terms of the geometric relationship between the wheelset and the track and more importantly reduces the wheel/rail forces. It is concluded that cross-bracing is a potentially valuable technique in that for a given performance in terms of top speed the curving performance of a bogie can be improved over that of a more conventional design.