

MEASURED WHEEL/RAIL FORCES THROUGH SWITCH DIAMONDS AND SWING NOSE CROSSINGS

Measurements of track forces through switch diamonds show that large forces can be produced both vertically and laterally. Vertically, a double peak can occur on either rail near the centre of the diamond. One peak is caused by load transfer between switch and wing rails, the other by a groove in the head of the wing rail worn by the outer edge of wheel negotiating the diamond on the other road. The sometimes very large lateral forces are caused by alignment defects. The track forces so far measured at swing nose crossings are comparatively small.

For suspensions with little friction it has been shown that P2 forces can be accurately measured using three accelerometers; use of this method will make future testing cheaper and easier. Measuring accuracy of P1 forces remains uncertain and considerable development work would be necessary to solve this problem satisfactorily. A great deal of track force data on Switch and Crossing (S&C) now exists and could be usefully studied to identify existing track defects and to guide work on improved designs.