

THE RESPONSE OF CLAMP LOCK BODIES TO A CONTROLLED IMPACT

Prior to the introduction into service of Class 91 locomotives with their 140 mph capability, DoSTE commissioned a series of tests to verify the safety of existing point equipment at traffic speeds in excess of 125 mph. These tests showed that whilst speed had an effect, it was secondary to that of other variables. The tests also highlighted the need for a greater understanding of how vehicles and track conditions influence the strains experienced by safety critical components such as clamp lock bodies at facing points.

BRR was therefore commissioned to investigate systematically how variations in track conditions and traffic (including heavy axle load freight as well as high speed passenger traffic) affect the strains, and thus the risk of fatigue in clamp locks. This report forms one of a series detailing the results of this work.

The report conclusions include:

- Changing sleeper spacing could have a marked effect on the strains in the clamp lock. It therefore recommends that further work be carried out to determine the effect of sleeper spacing on the clamp lock strains.
- For a given drop height (impact velocity) smaller strains and accelerations occur if the impact is at a bolted joint, rather than on plain rail (simulating a welded joint). This does not mean that in track smaller forces will be generated at bolted joints than at welds as their poorer geometry (relative to welds) leads in effect to higher impact velocities.