

A BASIC STUDY OF WHEEL / RAIL ABRASION. SIMULATOR RIGS

4. LAB

The report describes three new laboratory machines which have been built to simulate the contact conditions between wheel and rail. The report presents specimen results obtained from using the machines and comparisons are made of their performance. The results are also compared to earlier experiments using sliding-ball apparatus.

Each machine measures the friction between steel specimens which represent the wheel and the rail. Each was designed to employ test specimens which can readily be conditioned to simulate the presence of different types and quantities of rail head contamination.

The results showed that the rolling-disc tribometer and the torsional friction apparatus proved most useful. The disc-cylinder machine continuously generates debris that has an uncontrolled effect on the surface lubrication conditions. When the particle size is large (e.g. assessing the effect of sand), the torsional-friction rig with its large contact area is the most appropriate apparatus to employ.