

STRAIN MEASUREMENTS AT EGGINGTON AND FATIGUE LIFE ASSESSMENTS ON HUSH RAIL

As the stresses in 'Hush' rail are significantly greater than in 113A rail, the growth rate of any defect is likely to be much greater. Although this is considered to be acceptable in a short-term experiment, the effect on the long-term fatigue performance and inspection requirements would be a cause for concern.

In order to address these questions strain measurements were carried out on the 'Hush' rail at a test site in Eggington. Longitudinal stress distributions across the rail section were monitored and recorded under normal traffic. The residual stress distribution in new 'Hush' rail was also measured. Such information is essential if the fatigue life and the likely growth of small defects in the rail are to be assessed.

It is equally important for the likely fatigue performance of the 'Hush' rail construction in other track categories to be assessed in order to determine the possible future areas of application of this rail. Therefore, fatigue life assessments have also been carried out for a number of other track categories. The potential benefits offered by stretch-straightened rails are also investigated, although stretch-straightened rails have yet to become available on a commercial scale.

It is concluded that fatigue failures of 'Hush' rails are unlikely at the Eggington test site during the intended test period of about 5 years, but modifications would be required for the other track categories considered in a long term installation.