

Wheel Wear Report

LCF OnBoard Sticks Freight

Australian Freight System

EXECUTIVE SUMMARY

In early 2000 Kelsan undertook to review the performance of the LCF flange lubrication systems as fitted to the 120 NRC locomotives maintained under contract by the Australian Freight System (AFS). The primary goal was to determine the effectiveness of the Kelsan system compared to an alternative product, the Nathan shoe. Four variations of Kelsan applicator and product were used in the comparison.

Results: the current Kelsan solution is on average more than twice as effective as **Nathan**. This is represented by Figure 1 below.

Flange Wear Rates

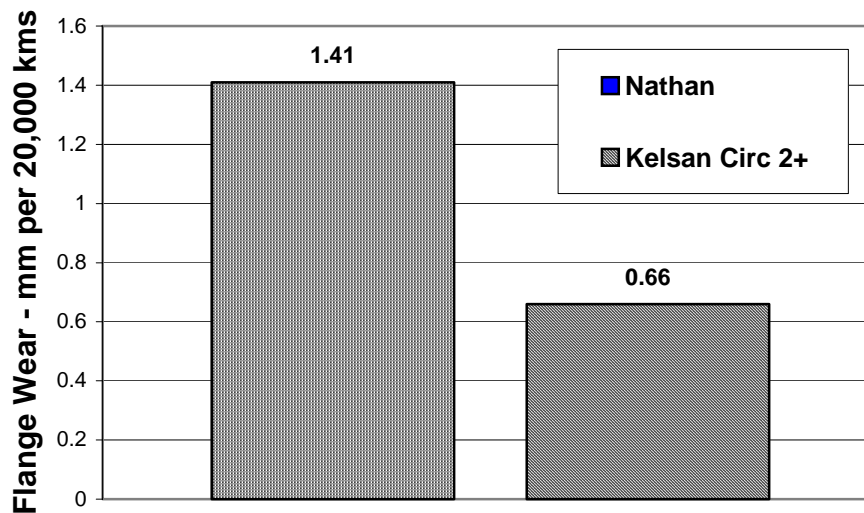


Figure 1: Flange wear comparisons, Australian Freight System NRC locomotives.

The data further shows that although, on each locomotive, only four of twelve wheels are directly lubricated, all wheels are wear protected.

Kelsan is near completion of the development of an enhanced delivery system (Circ III applicator and the LCF solid lubricant). The new system has been designed in consultation with the AFS. Features and benefits include:

1. Extended flange lubrication protection with highly accurate delivery.
2. Replacement Interlocking sticks eliminate any wastage of product.
3. Replacement sticks can be quickly and easily reloaded – by unskilled staff if necessary.

The next report will feature comparative results from the first field prototype “Circ 3” systems due to be deployed in mid March 2001.

Note: To obtain a copy of the full report or find out the identity of the Australian Freight System, please contact John Milobar, Vice President Sales & Marketing at 604-984-6100 or jmilobar@kelsan.com.